

Student Success

The goal of public education is to provide students the skills and knowledge they need to be successful once they graduate from high school. In order to ensure students succeed, educators need a variety of resources and support structures. Further, as success can be defined in multiple ways and may look very different from student to student, the measurements used to define success must be varied in nature. On occasion, per pupil spending is identified as having an impact on student performance. In other instances, differences in family and community demographics are used to explain differences in student achievement. And, in many cases, the quality of the instructional experience is recognized as having the most significant impact on the performance of individual students.

This section examines the relationship between various spending benchmarks and student achievement, as well as ODE's management of programs related to improving student achievement. This area of analysis has been studied from multiple angles in academia, by Ohio and other states, and on a national level, and a wide range of factors can be considered as impacting student success. However, the analysis in this report focuses on 79 high performing Ohio districts and seeks to explore the relationship between funding and allocation within these districts that consistently achieve good results.

Background

Ohio has more than 240,000 educators serving in 3,500 schools and educating more than 1.7 million students. In Ohio, billions of dollars are spent annually on public education, with the vast majority of funding coming from state and local sources. In FY 2020, approximately 11.75 billion dollars was appropriated to ODE by the General Assembly, with 98 percent of that funding passing through directly to LEAs in the form of state foundation funding for the purpose of providing educational resources to public school children. Given the large number of students and the dollars spent on their collective education, it is important that success measures are clearly identified and tracked.

Defining success for that number of individuals is a difficult undertaking. In 2019, the Ohio Board of Education published its five-year strategic plan titled *Each Child, Our Future*. This plan is designed to ensure that each student in Ohio is challenged, prepared, and empowered for his or her future. In particular, the plan addresses the needs of the rapidly changing job market, more diverse students with nuanced learning needs, and increased student exposure to poverty and other social stressors.

Success can be measured in a number of ways; while one student may view success as getting a scholarship to a four year university, another may view success as graduating with a skill set that allows them to enter the workforce immediately, and still others with significant disabilities may view success as simply integrating into the high school environment.

In order to determine how best to identify student success and achievement, we conducted several interviews with ODE and surveyed traditional school district superintendents. While ODE measures success on a district level based on a variety of criteria discussed below, district superintendents do not always agree with these evaluations. Approximately 70 percent of survey responses indicated that the Ohio School Report Card was either moderately inaccurate or very inaccurate when determining student achievement. The majority of responses indicated that high school graduation rates, which is one component of the Ohio School Report Card, were the best indicator of student achievement.

Ohio Report Card

The Ohio School Report Cards are issued annually¹ and designed to give citizens and parents information about the performance of LEAs and schools. While these report cards are only one set of success metrics, they provide transparent information that can drive local continuous improvement initiatives and identify those schools that need additional support. Districts are given an Overall Grade² based on the grades received in the six individual sections:

- **Achievement:** Represents the number of students who scored proficient or higher on the state tests and how well they performed on them. The Performance Index Score is one component of achievement which measures results from the state assessments on a district-wide level.
- **Progress:** Looks closely at the growth that all students are making based on their past performance. This grade is measured by reviewing the value-added grade for specific student groups within a school or district.³ Value-added measures how much growth a group of students made relative to the expected growth.
- **Gap Closing:** Shows how well schools are meeting the performance expectations for the most vulnerable populations of students, such as economically disadvantaged, students with disabilities, and English learners, in English language arts, math, and graduation.
- **Graduation Rate:** Looks at the percent of students who are successfully finishing high school with a diploma in four or five years.
- **Improving At-Risk K-3 Readers:** Identifies the success level of districts and schools at improving at-risk K-3 readers.
- **Prepared for Success:** Looks at how well prepared Ohio's students are for future opportunities, whether training in a technical field, entering the workforce, or preparing for college.

The overall grade is based on a weighted average of the component scores with achievement and progress both representing 20 percent of the total grade and the other four components each representing 15 percent of the grade. The grades and assessments, discussed in **Section 2: Ohio**

¹ Due to the state of emergency declared in March of 2020 as a result of the COVID-19 pandemic, full report cards were not issued in 2020.

² For more detailed information on the Report Card, see [ODE Guide to 2019 Report Card](#).

³ Value-added is measured for all students, gifted students, students with disabilities, and students whose academic performance is in the lowest 20 percent of students statewide.

Student Assessments are used by districts to tailor individual student educational opportunities and supports, and grade level curricula.

Education Improvement Initiatives

ODE administers dozens of programs which are designed to improve student success. These programs range from administering federal lunch programs, to ensuring regular student attendance, to providing districts assistance on key continuing improvement projects and are all designed to provide students with the tools they need to be successful.

Why We Looked At This

Because so many children are educated in Ohio’s public schools and the state funding appropriation is so large, we included this area in our audit. Funding for education is comprised of federal, state, and local sources. The level of funding from each source varies amongst the districts, just as any characteristic which can be measured will have variation from one district to another. In order to best allocate and manage funds, it is important to understand differences amongst the districts, and how these differences correlate with the ultimate achievement and expenditure.

We further reviewed ODE’s improvement initiatives to better understand how the Department is identifying at risk populations and assisting districts in continuously improving the programming offered to students. The Department identified 68 initiatives and program areas that support student achievement, from distributing federal funds for school lunch programs to managing contracts for a statewide system of school support agencies. We reviewed the Department’s management of these initiatives to determine if they were being operated in an effective manner.

What We Looked At

While student success is comprised of numerous metrics, we focused on the District Profile Report, Performance Index Score and the ODE value-added metric as a means of understanding academic achievement on a district level across Ohio. While not an inclusive understanding of student success, these metrics were chosen in consultation with ODE as a standardized measure for district performance. Our analysis within this section focused on traditional school districts in Ohio.

District Profile Report

In this section we used data from the 2019 District Profile Report as part of our analysis of expenditures and student success. It is described as a “comprehensive compilation of some useful data elements on Ohio public schools districts, some of which was released through what was and still is popularly known as the Cupp Report.” The data present in the report is some, but not all, of the data elements that represent a public school district. Within the report, the variables are classified into seven different areas:

- Demographic Data, such as District Pupil Density and Total Year-end Enrollment;
- Personnel Data, such as Classroom Teacher Average Salary and FTE Number of Administrators;
- Property Valuation and Tax Data, such as Assessed Property Valuation Per Pupil and Total Property Tax Per Pupil;
- Local Tax Effort Data, such as School Inside Millage and Local Tax Effort Index;
- Expenditure Data, such as Total Expenditure Per Pupil and Instructional Expenditure Per Pupil;
- Revenue by Source Data, such as Total Revenue Per Pupil and State Revenue Per Pupil; and
- School District Financial Status Data, such as Salaries as Percent of Operating Expenditures and Purchased Services as Percent of Operating Expenditures.

District Profiles

ODE publishes District Profile Reports annually which contain data for regular public school districts in Ohio such as revenue, expenditure, valuation, tax, financial, personnel, and demographic data. These reports were used to compare and contrast districts at various ranges in each of these categories as well as identify smaller groups of districts for more specific analysis within this report.



[Click Here for the Profiles.](#)

Our analyses is limited to these variables. However, readers should be aware there are numerous studies that include additional variables not included in the District Profile Report that may measure, reflect, or impact student performance. In reality, it is often a combination of variables, not a discreet variable that has the greatest impact on student achievement.

Performance Index

The Performance Index Score (PI Score)⁴ is a measure that is required by ORC §3302.03 as a part of the annual Ohio School Report Cards. The PI Score is designed to measure the achievement of every student, beyond a simple recognition of proficiency. Standardized tests have five performance levels⁵ as identified in ORC §3301.0710 and §3301.0712 which are used in the calculation of the PI Score. Therefore, during the analysis process, a district which had a PI Score of above 100 was considered to be a “High Performer” for purposes of our analysis.

The Performance Index translates student test performance into an aggregate school or district index score. The performance level on each assessment is weighted so that a level of proficient receives a weighted value of 1.0 whereas lower proficiency levels receive fewer points and higher proficiency levels receive more points. Based on these weighted scores, if every student scored proficient on all the assessments, the school or district would have a PI score of 100.

⁴ Identified in ORC §3302.01 as the average of the totals derived from calculations, for each subject area, of the weighted proportion of untested students and students scoring at each level of skill described in division (A)(2) of ORC §3301.0710.

⁵ Possible levels for statewide assessments are: Advanced, Accelerated, Proficient, Basic, and Limited.

These scores are calculated on an annual basis, and while they do not take into account previous test scores, an increasing PI Score from year to year does indicate a general improvement in proficiency levels. Achievement on assessments is one indicator that can be used to identify student success. Because assessments have been carefully designed to be fair and equitable measures of student progress towards mastering Ohio Learning Standards (See **Section 2: Ohio Student Assessments**), this metric was used to compare schools across Ohio.

Value-Added Model

The value-added model is a series of calculations used by ODE to determine year over year progress for students within a district and its schools. This model is used on the student population as a whole and also for specific subsets of students who may have additional educational needs.⁶ Value-added measures the change in achievement for students over time and is used to assess the impact of districts, schools, and teachers on the growth of students in a particular group.

Each group is given a grade as a part of the overall Progress component of the Ohio School Report Cards. A group which makes more progress than expected earns a district an A or B, expected growth earns a district a C, and lower than expected progress earns the district a D or F. These grades are then weighted in order to obtain the final component score.⁷

While not all students start at the same place with their learning, it is important to measure how each student learns and grows over time. The value-added grade provides a district level review of how all students are progressing with a particular emphasis on those groups identified as needing additional education needs. If a district receives a score of C or lower in either their lowest 20% of students group, their gifted population, or among students with disabilities, then they do not have the ability to receive an A as their overall value-added grade. Value-added is an important metric used by ODE in order to identify which districts are seeing improved academic achievement over time.

Student Support Initiatives

While measuring student success is an important function of ODE, providing support systems to students and districts is also critical. Without some of these support structures, students would be left in a vulnerable position without resources that are necessary for their success. We reviewed the programs that ODE is currently administering to determine if their outcomes were being appropriately monitored and reviewed.

⁶ Value-added modeling does not provide growth measurements for individual students.

⁷ Group weighted values are as follows: all students (55 percent), gifted students (15 percent), students with disabilities (15 percent), and students whose academic performance is in the lowest 20 percent of students statewide (15 percent).

What We Found

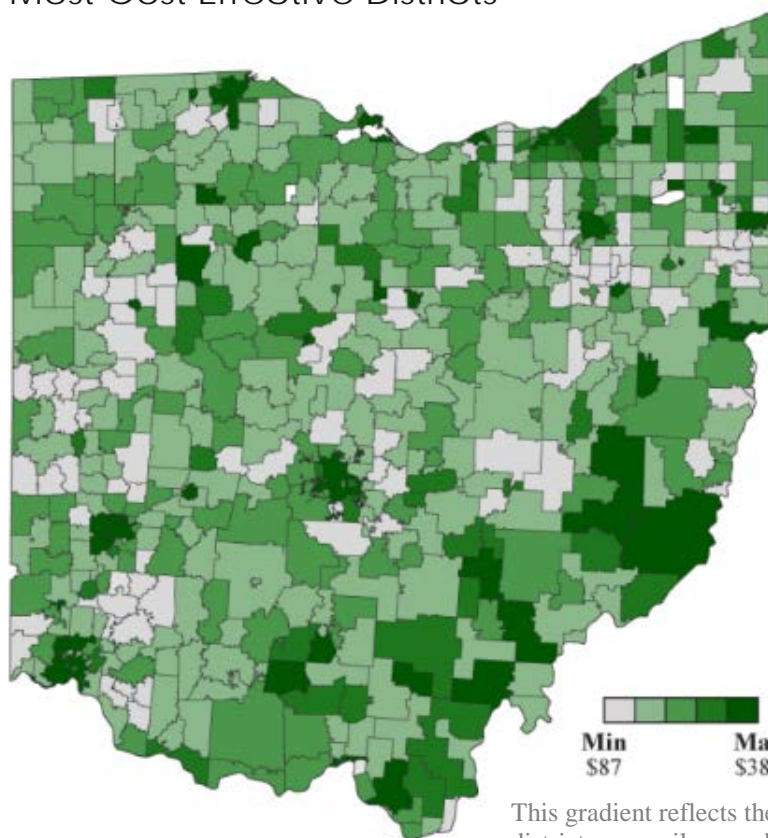
After examining and analyzing the data sets described above, we found that PI scores vary between districts, even at similar expenditure levels. We analyzed more than 600 school districts in Ohio, to determine how expenditure levels may impact district performance on those areas where ODE maintains data. We specifically reviewed the impact per-pupil spending at the district level had on PI score and found that there was a very low correlation. Generally, on a statewide level higher per-pupil spending was correlated to lower PI scores.

We further found that there is a broad range of factors beyond expenditure levels that also impact PI score and other measures of success. These factors impact districts to varying degrees.

High Performing and High Improving Districts

In order to draw any conclusions, we identified a subset of 79 high performing districts to conduct further analysis on. Those districts identified as high performing for purposes of this report obtained a PI score of greater than 100 (or high performing) in FY 2019. The 79 selected districts are listed in **Appendix B**.

Most Cost Effective Districts



This gradient reflects the district per pupil expenditure divided by the PI score, resulting in a cost per PI point.

Source: ODE and AOS

This map shows each school district with its shading corresponding to its Expenditure per PI Score Point value. This value was taken by dividing the Total expenditure per pupil value by that district's PI Score. Per the legend, the darker the shading the more that district spends per PI Score point. In order to highlight the differences amongst the state, the legend was split into 5 color shades.

Note: A list of all high performing district's expenditure per PI point can be found in **Appendix B**.

In addition to high performing, we found that there were a number of districts that could be considered high improving based on both the PI score and value-added grade.

Spending per PI Score Point

In the map on the previous page, districts are shaded based on the amount of money spent per PI score point. Those districts that spend less per PI score point are shaded in a lighter green, whereas districts that spent more per PI score point are shaded darker.

Readers should note that the map reveals districts that approach student achievement improvement in a more efficient manner. The lightest shaded districts ensure high performance and continuous improvement at a more cost effective rate than the darker shaded districts. These districts are financially efficient and effective in their education delivery approach

Student Success Improvement Programs

In addition to the district per-pupil expenditures, we reviewed ODE's internal programming that is designed to improve student success. Some of these programs operate as a funding pass-through while others are implemented and administered by ODE employees. We found that these programs are not consistently monitored in a manner that allows for quantitative determinations of operational success. Generally, these programs do not have consistent metrics to help ODE determine which are most effective and, therefore, where to allocate resources into programs that get results.

As a result of our analysis we identified two areas relating to student success that ODE could improve operational efficiency and effectiveness:

- **Recommendation 1.1:** Data examining the relationship between costs and achievement are not regularly examined and our analysis indicates little relationship between higher spending and higher achievement. In fact, the data suggests that spending in specific functional categories is more important than total spending in raising and maintain student achievement. To ensure this data is routinely monitored, the Department should monitor districts it deems to be high performing or high improving, particularly those that achieve results at lower-than-average expenditure levels in order to determine how other districts might achieve more cost-effective outcomes. This information can be used to assist other districts in areas of strategic spending, program utilization, and resource allocation.
- **Recommendation 1.2:** ODE has 68 separate programs directly or tangentially related to improving student achievement. While activity measures and formal reports exist for federal and some state programs, the Department has additional opportunities to establish a routine, timely, consistent objective method to measure the efficacy of state programs and focus on outcome measures to determine if the programs achieve their goals. To measure the outcomes of ODE's improvement initiatives, the Department should collect sufficient business intelligence to make quantitative determinations of program success and failure. SMART criteria is one such framework that could help guide consistent development and help to ensure that results are specific, measurable, attainable, reasonable, and timely.

Recommendation 1.1 Monitor District Performance and Apply Lessons Learned

The Department should monitor districts it deems to be high performing or high improving, particularly those that achieve results at lower-than-average expenditure levels in order to determine how other districts might be able to achieve more cost-effective outcomes. This information can be used to assist other districts in the areas of:

- Strategic spending;
- Resource allocation; and,
- Program utilization.

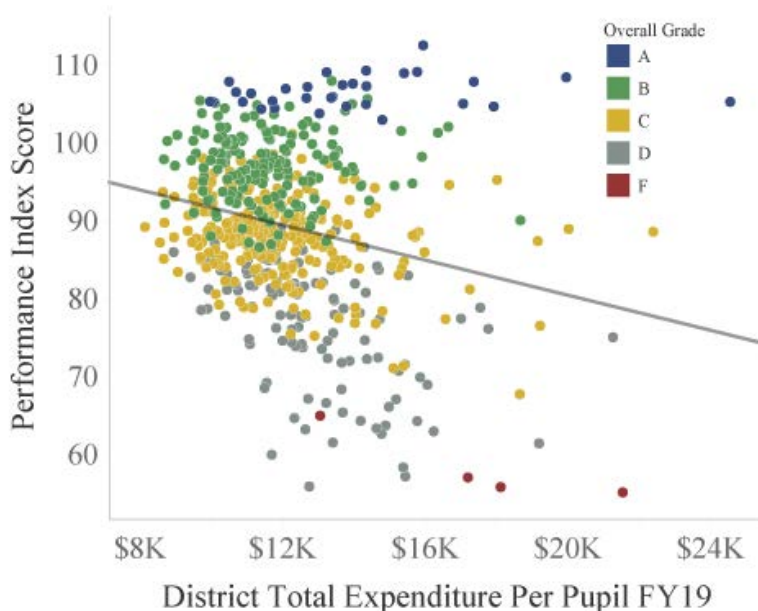
This would enhance the current ODE strategic plan involving continuous improvement, and would be a good use of the business intelligence at the Department’s disposal from the various yearly data already being collected. By collecting and applying the lessons learned from this information, ODE may be able to determine strategies to raise performance in all Ohio schools districts without significantly increasing district costs.

Background

School funding in Ohio represents a significant expense at both the local and state level. Generally, a large portion of an individual’s property taxes will go towards the local school district. Districts also may receive significant sums of money from the state through the foundation program (See **Section 4: Foundation Funding**). While all districts work towards the same goal of preparing students for success after high school, they do so with widely varying budgets. In Ohio, the average district spends approximately \$12,000 per pupil on an annual basis. Expenditures among all districts range between approximately \$8,500 and \$25,000.

As the **Expenditure vs Achievement** chart to the right shows, there is significant variation in PI scores across districts and expenditures are not a defining factor in determining district achievement. In each of the

Expenditures vs Achievements – All Districts



Source: ODE

grade categories, there is a wide disparity in the dollar amount spent per pupil for the grade attained. For example, districts with an A grade spent between \$9,921 and \$24,510, while those with a C grade spent between \$8,096 and \$22,351. Specifically, when looking at all districts in Ohio, the four districts with the highest expenditure per pupil had 2019 report card grades of A, C, D, and F.⁸

While it may be believed that expenditures are tied to achievement, our analysis found higher expenditures do not guarantee higher PI scores. Our regression analysis which identified the impact expenditure had on PI score showed that on a statewide level, expenditures were loosely, and negatively, correlated. This means that generally, as per-pupil expenditures increase, a District's PI score decreases. However, this is a loose correlation and should not be used to draw conclusions regarding district wide expenditure levels as there are a wide variety of factors that influence student achievement.

The analyses in this section indicate that it is not necessary for districts to spend more to get better results. The data show that lower spending districts can achieve at the same level as higher spending districts, a point which parents and taxpayers should take into consideration in their personal decision-making surrounding financial and performance issues in their district. ODE and LEAs should consider if there is a point of diminishing returns in spending, where additional district revenue and expenditures will not necessarily increase student success.

Methodology

Throughout the analysis of expenditures versus achievement, we used a linear regression analysis of selected data from the 2019 District Profile Report. A linear regression analysis finds the line that most closely fits the data, which is a form of estimating the relationship between one variable and another. While regression can be done on any number of variables, within our analysis the regression always compared one variable to either expenditures or PI Score. The output can be in the form of a percentage, and this percentage represents the amount of variation in expenditure or PI Score that can be explained by a certain variable while holding any other variable constant. Within the generated regression summary table, there are three components which were important for our analysis:

- **P-Value:** This is also known as a confidence interval. The p-value benchmark that we used, which is the most common, was .05. This is the equivalent of saying our confidence interval was 95%. Essentially, when an output produces a p-value that is equal to .05, we can say we are 95% confident in the results of the output. Anything above .05 would be labeled as not significant.
- **Coefficient:** The coefficient is the slope of the line of best fit created between the two variables. If this number is positive (and the line is trending upward,) then it means as one variable goes up, the other does as well. If negative (and the line is trending downward,) as one goes up the other goes down.

⁸ These Districts were: (A) Orange City SD at \$24,510.88, (C) Newbury Local SD at \$22,351.67, (D) Cleveland Heights-University Heights City SD at \$21,222.14, and (F) East Cleveland City SD at \$21,495.93

- R-Squared Value:** This is produced as a decimal, but can be converted to a percentage. This value indicates the variation in the response variable that can be explained by the explanatory variable. For example, an r-squared value of .55 indicates that X explains 55% of the variation of Y within the data set examined.

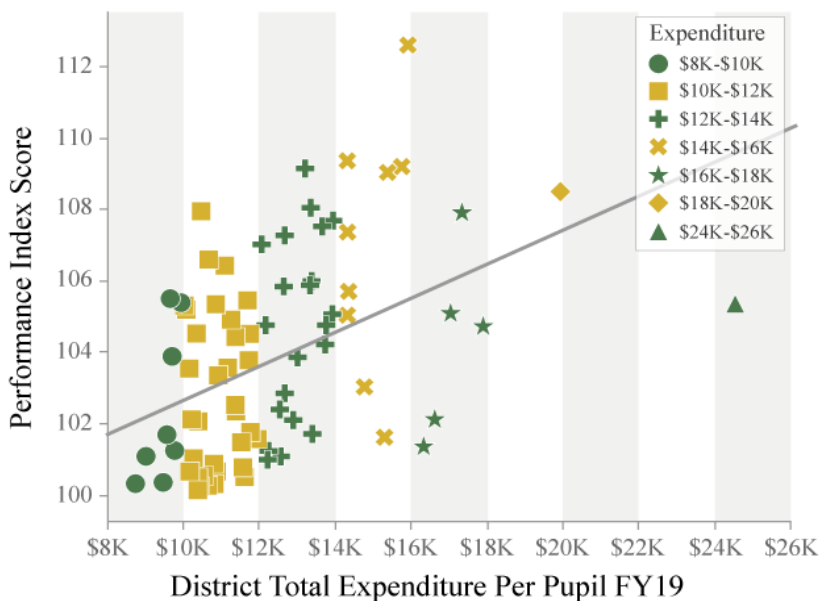
In order to better understand how expenditures might impact a group of similar districts, we identified 79 that had a PI score greater than 100 and were considered high performing for the purposes of analysis. These districts represented a range of spending similar to the state as a whole. Approximately \$8,500 to \$25,000 per pupil. Although there are a wide range of factors that affect a district, we deliberately chose to narrow our focus to the high achieving districts. Interestingly, the cost range for these high performing districts mirrors the range of spending for districts statewide, regardless of performance level.

We applied the same regression analysis that was conducted on all districts in Ohio to the 79 districts that ODE and AOS designated as high performing. The results of this analysis indicated that there was a loose, positive correlation, meaning that as expenditures increased, PI score would also increase. However, the analysis indicated only a relatively small amount of the variability (19.7%) was explained by expenditure levels.

High Performers, Expenditures vs Achievement

In the chart below, we mapped PI score against expenditures per pupil for the high performing districts in order to visualize the variation in PI score at specific spending intervals.

High Performers Expenditures vs Achievements



Source: ODE

After determining that there was significant variation in spending for high performing districts with similar PI scores and that there were a wide range of PI scores within each spending band, we used the high performing districts to conduct multiple analyses in order to identify what factors might lead to increased expenditures.

High Improving Districts

In addition to our review of high performing districts, we used the PI score and value-added model to identify districts across the state that could be considered high improving. The high

improving districts were identified at the request of ODE for use in further review and analysis by the Department.

Analysis

Comparison of Variables

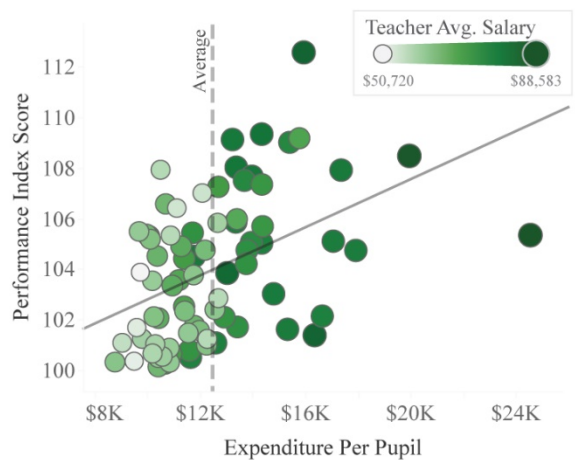
Once we identified the ten most strongly correlated variables which explain variation in expenditure levels between districts, we reviewed how these variables change based on PI score. While this is not a comprehensive analysis to determine correlation or causality, it does provide insight as to what variables may be useful for further study into strategic spending.

In each of the charts on the following page, the high performing districts are plotted based on their spending per pupil and PI score. The district's expenditure levels and PI score do not change from chart to chart. However, the green dots represent a third variable, which is different in each chart. As dots become larger and darker, the value of those dots increases. Using these charts we can see generally what variables impact expenditures and PI scores.

Classroom Instruction (Teacher Salary)

Looking at the teacher salary variable captured in the District Profile, we can see that as expenditure per pupil increases in the 79 high performing districts, teacher salary also increases. On average, 58 percent of a district's expenditures are related to instruction and this includes teacher salary.⁹ We also see that as teacher salary increases there is some increase in PI score. This may be indicative of resources directed toward classroom instruction, or teacher experience and tenure. **This is an area of potential further review for ODE to determine if strategic spending in relation to classroom instruction and teacher salary could result in improved PI scores.**

Teacher Salary Correlation –
79 High Performers



Source: ODE

⁹ *Ohio Education by the Numbers*, Thomas B. Fordham Institute, 2020.

Median Income

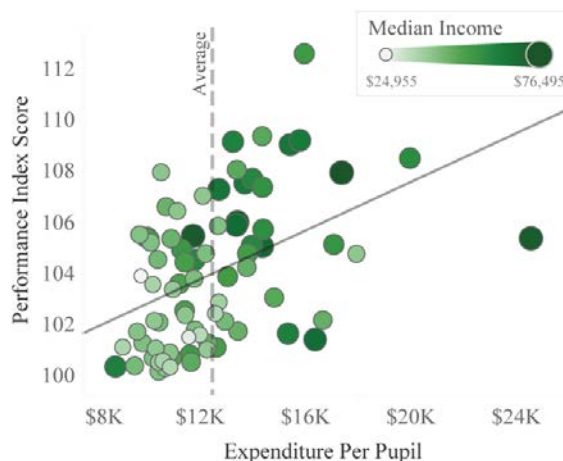
Unlike the other variables we reviewed, median income has high correlation with both expenditure levels and PI score in the 79 high performing districts. This is reflected in the chart on the right, where the dots are progressively darker and larger along the trend line. Essentially, in districts where individuals have higher levels of income, greater financial resources are usually available to the district.

Local Revenue

Local revenue was one of the most strongly correlated factors in regards to expenditure. However, it does not appear to be as tied to PI score, as districts in the same band of expenditure have similar local revenue amounts, regardless of PI score. As noted in the box plots on page 23, expenditures increase across all categories as expenditure per pupil increases. While local revenue determines expenditure levels, it determines overall expenditure levels, rather than targeted spending. Like median income, local revenue may be influenced by residents' capacity and willingness to support a higher level of spending.

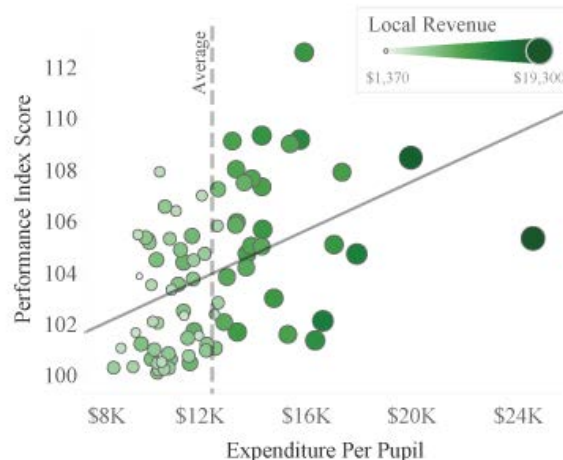
These charts represent how three variables are related to expenditures and PI scores. The same analysis was done for all school districts in Ohio using a number of variables. To see our full analysis, please click here: [2019 School District Dashboard](#).

Median Income Correlation – 79 High Performers



Source: ODE

Local Revenue Correlation – 79 High Performers



Source: ODE

Regression Analysis

We identified ten variables, listed in the table below that most significantly impact expenditures for the 79 high performing districts.¹⁰ Our analysis found that each of these variables had a statistically significant, positive correlation with expenditure levels. This means that as any one variable listed in the table increased, expenditure levels would also increase.

Regression Analysis Summary

Variable	Category	R-Squared	Coefficient
Total Revenue	Revenue	87.26%	Positive
Local Revenue	Revenue	77.42%	Positive
District Total Property Tax Per Pupil	Revenue	72.12%	Positive
District OSFC 3-Year Valuation Per Pupil	Valuation	64.95%	Positive
District Revenue Per Pupil Raised from 1 Mill	Revenue	59.85%	Positive
District Assessed Valuation Per Pupil	Valuation	59.85%	Positive
District Classroom Teacher Average Salary	Staffing	54.41%	Positive
District Median Income	Income	30.21%	Positive
District Current Operation Millage Incl JVS	Revenue	23.17%	Positive
District Administrator Average Salary	Staffing	20.25%	Positive

Source: ODE and AOS

Based on the table, the variable which has the greatest impact on district expenditure is total revenue, with local revenue being a close second. This means that revenues are the single most important factor when explaining expenditures. In other words, LEAs will spend the resources that they have available. Within government entities, this is not uncommon as generally an amount for expenditure is allocated at the beginning of the year. Since public entities are required to maintain balanced budgets, available revenues and fund balances are the typical factors which determine how much entities plan to spend in a given year. However, as costs increase with inflation, this type of budgeting and spending can drive the need for additional future revenues.

Expenditures Analysis

We also reviewed expenditure levels in functional categories identified by ODE to determine if any trends existed regarding where funds were spent. This analysis is to examine if there are areas of spending that stand out in the 79 high performing districts. In other words, does it matter how a high performing district spends its revenue in contrast to a high improving or low performing district?

¹⁰ These variables represent the ten variables with the highest degree of correlation. For purposes of analysis we reviewed

Our analysis showed that districts spend similarly across broad categories based on a proportion of the available budget. As seen in the chart to the right, as overall per-pupil spending increases, spending within each category also increases. This would suggest that spending plans or the cost of certain operations as a proportion of total costs are likely similar across districts and funds are allocated similarly based on available resources. However, given the variation in PI score for high performers in similar expenditure buckets, it is possible that strategic spending within any one of these operational areas could be identified in order to provide guidance on resource allocation to other districts.

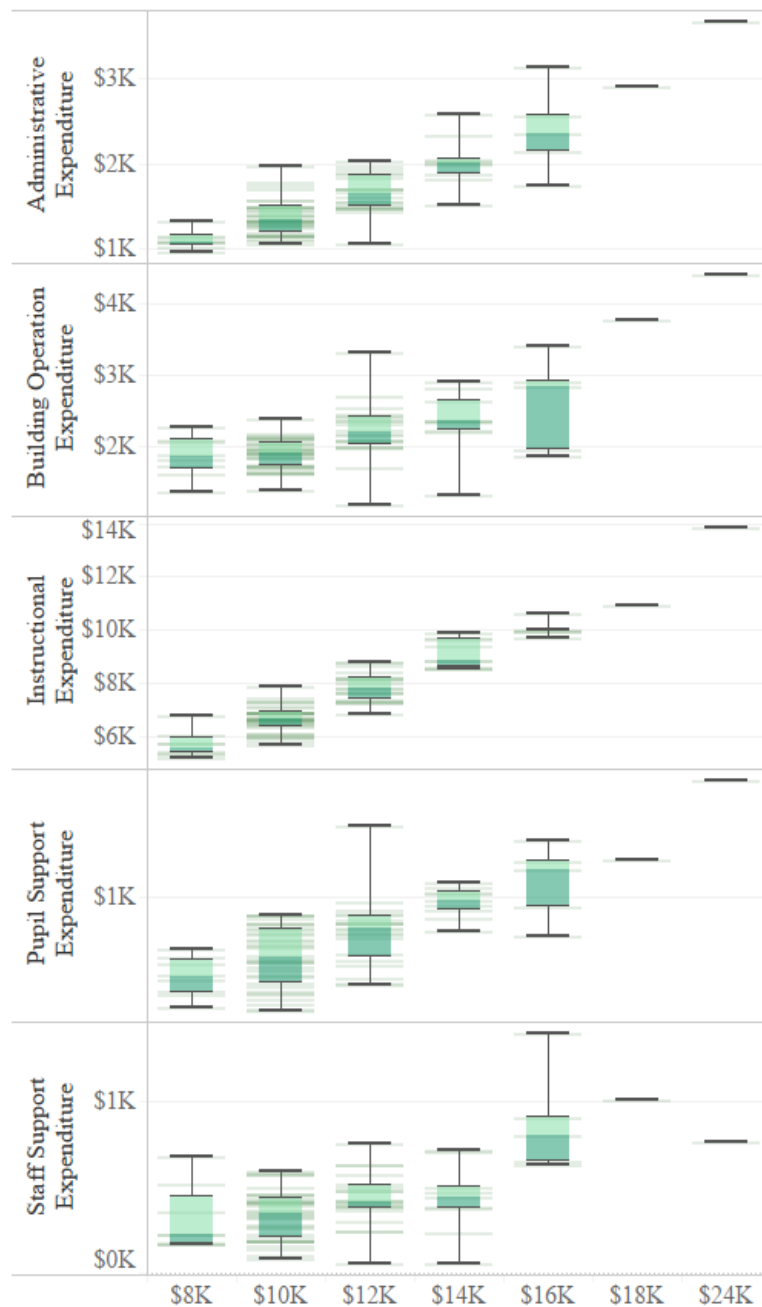
High Improvers

As a component of this audit, ODE asked AOS if we might review high improvers as a component of this analysis.

ODE uses the value-added metric in order to track district progress in improving student achievement. Districts may move along a graded scaled from year to year based on the test scores of the student population. This measure is

described by ODE as being “highly sensitive” by design and it tends to view the measure over a longer period of time than year to year. As seen in the graphic on the following page, there has been significant movement in the past few years, in particular with large number of schools dropping from a grade of A to a grade of B between FY 2018 and FY 2019, in part due to a change in methodology. ODE indicated that a single letter grade decline from one year to the

Expenditure Categories by Total Expenditure

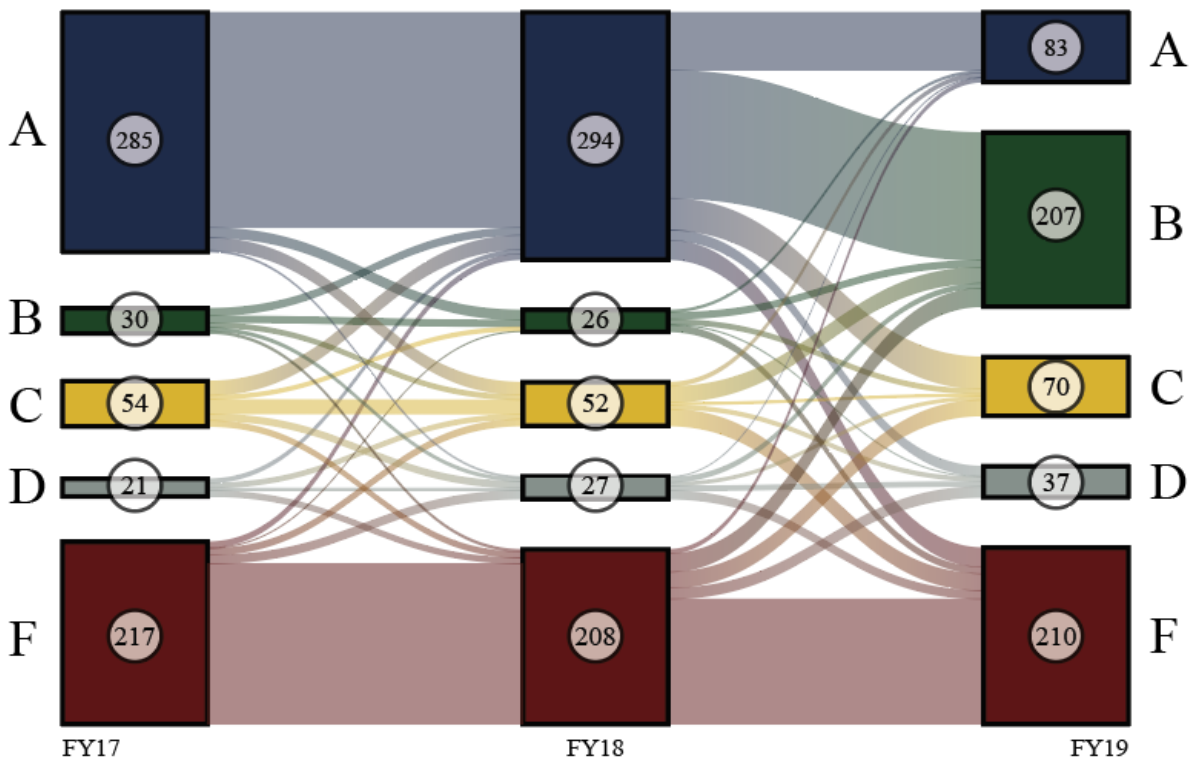


Source: ODE

next would not be cause for concern whereas a significant drop coupled with persistent lower performance would be a catalyst for ODE intervention.

During the three year period used for review, some districts saw improved progress, with some moving from a grade of F to A in the span of one year. In order to provide more context to this improvement, we also reviewed the PI score for those districts in order to identify a group of high improvers for review.

Value-Added Grading Distributions: FY17-FY19



Source: ODE

ODE maintains data which can be used to identify high improving districts on a regular basis. These high improving districts demonstrate that changes in administration, curriculum, learning environment and/or classroom instruction, among other things, can help students improve their level of achievement. However, the Department does not meaningfully review this information in order to identify activities or programs within those districts that might be the driver of district improvement.

If ODE had a review process in place to further study high improving districts, it may be able to determine factors that led to these districts improving, such as expenditure realignment or programmatic innovations. This would allow ODE to identify if programs and initiatives were being utilized, if any, by these improving districts, which would in turn provide feedback to ODE on which programs are the best use of its resources. This additional data on programs and

initiatives, or even local steps that generate improvement, could be shared with low performing districts to provide strategies to raise their performance over time. This, however, assumes the lower performing districts willingly embrace and adopt these strategies and are committed, active participants in their implementation.

At the conclusion of this audit, ODE noted it will apply the additional information we provided regarding high performing districts so that the Department can continue the study of them.

Conclusion

Because statistical analysis shows that expenditure levels do not determine PI scores, ODE should conduct reviews of those districts that are deemed to be high performing or high improving in order to identify any characteristics, best practices, or innovations that could be shared with other districts in the state. This type of individual review would allow ODE to better understand and disseminate those factors which do drive success measures and help Ohio public school students continue to grow and learn.

Furthermore, school districts and their residents should regularly examine the level of spending within the district relative to the level of student achievement. Board members, administrators and tax payers are encouraged to question the efficiency and effectiveness of spending, and how local spending compares to similar demographic districts that are achieving better results. These points bear consideration as our data shows a wide variation in spending levels in the 79 high performing districts, as well as all other districts. A critical examination of efficiency and effectiveness on a routine basis may help districts better understand which programs might drive achievement at a reduced cost to residents.

Recommendation 1.2 Improvement Initiatives

To measure the outcomes of specific improvement initiatives, the Department should collect sufficient business intelligence to make quantitative determinations of program success and failure. A criteria framework could help guide consistent development and help to ensure that results are specific, measurable, attainable, reasonable, and timely. Though activity metrics and periodic reporting are required for some state and most federal programs, other programs within these identified as improvement initiatives do not have routine outcome reporting.

ODE should aggregate performance data in a manner that allows stakeholders to monitor outcomes and results across many of the programs the Department administers. Developing quantitative performance dashboards for some of its programs would present an opportunity for ODE to answer several reasonable questions from the perspective of Ohio taxpayers, such as:

- What student outcomes are attributable to spending within a particular initiative? i.e. “What are we getting for our money?”
- What student outcomes are attributable to a combination of specific initiatives?
- What ODE program or combination of programs has the most overall impact on student academic improvement? The least?
- Where is ODE getting the most ‘bang-for-the-buck’ in its spending?
- Which programs or combination of programs have improved in performance year-over-year? Which have declined?
- Within the context of limited resources, where should dollars be focused, where should funding be increased or decreased, and which programs should be expanded or phased out?

ODE should work toward developing metrics and measures that would facilitate identifying the impact of its various improvement initiatives, with particular attention given to cost-effectiveness. In addition to increasing transparency into district level and Department spending and results, this type of business intelligence would provide insights as to how future funding increases or decreases should be allocated across ODE programs and where districts should target spending. This recommendation dovetails into **R1.1** as it reflects the state level allocation of resources to programs.

The absence of critical and comparable tracking data means ODE is unable to strategically allocate scarce resources to its programs that have the greatest impact. In order to maximize the effectiveness of its resource investments, ODE needs to identify the programs that are performing as desired and potentially discontinue those with lower value.

During the course of the audit, ODE identified to the auditors approximately 20 programmatic strategies that, taken together represent those most likely to impact overall district, school and student performance. These include curriculum alignment, adoption of high quality instructional materials, investment in coaching for teachers, investment in instructional leadership for principals, focusing on school culture and a reduction in disciplinary actions to reduce disruptions, and implementing trauma informed practices. ODE noted that a challenge in

measuring the efficacy of performance initiatives and changes such as the above is determining which actions have a greater impact in the holistic diagnosis of school improvement. This recommendation encourages ODE to continue to pursue methods of identifying those components that appear to have a greater impact on school performance, as discussed in **R1.1** and, for specific programs, identifying key outcome metrics that can be tracked and reported.

Background

ODE identified 68 initiatives and program areas which were considered to be significant and include both those areas where the Department acts in a fiduciary manner and distributes funds directly to districts as well as those that ODE has developed internally and administers directly.¹¹ These initiatives provide direct assistance to students in many ways, such as in the form of subsidized school lunches or mentoring programs. They also provide support to teachers and districts in a variety of ways.

While the improvement measures are varied in nature, they do have the common theme of being designed and implemented with the goal of improving student success, whether by direct assistance for students or through the monitoring and tracking of district level performance metrics. For example, ODE administers the following programs which are considered improvement initiatives:

- **Student Wellness and Success:** Targeted state funding designed to help schools address the non-academic barriers to learning that students face every day. Funding is provided on a per-pupil basis and is scaled using federal census poverty data to provide additional support to high-needs districts;
- **School Improvement:** State funding set aside to provide for regional specialists who support and facilitate school improvement processes with state support teams and educational service centers; and,
- **State Assessments:** Funding used to support the administration of state assessments including the development, production, distribution, collection, scoring, and reporting of assessments.

These programs are housed within multiple ODE program offices and each have unique budgetary requirements and success metrics. Due to the timing of the audit and the reimbursement process for many of the federal programs, we were unable to calculate a total cost for these programs.

Methodology

Because ODE maintains numerous programs with a variety of management requirements, in addition to our survey of district superintendents, we conducted a thorough review of two specific improvement initiatives. These initiatives, the State Support Teams (SSTs) and District Review Program are both designed to provide assistance to districts directly. The SSTs provide districts with a variety of support services and the District Review Program is designed to

¹¹ For a complete list of initiatives please see **Appendix B**.

provide specific analysis to assist districts with continuous improvement efforts. School district input was also collected as part of a statewide survey sent to Superintendents.

The information we received from ODE regarding their initiatives and program areas related to student achievement was used to conduct an analysis related to how the Department presently monitors and tracks the successfulness of achievement programs, with a particular focus on the programs identified above.

Analysis

After reviewing the information provided by ODE, we identified that business intelligence metrics were not listed for each of the 68 student achievement initiatives. The absence of these metrics reduces ODE's ability to quantitatively measure the effectiveness of the programs and provide timely and targeted interventions.

Defining objectives related to project or program success prior to implementation is an important aspect of being able to monitor performance. One such way of identifying success is the SMART criteria.¹² SMART is an acronym which states that objectives or goals should be:

- **Specific:** Target a specific area for improvement;
- **Measurable:** Quantify or suggest a progress indicator;
- **Assignable:** Specify who will do a task;
- **Realistic:** State what results can be achieved given available resources; and,
- **Time-related:** Specify when results can be achieved.

Concurrent to requesting information from ODE on all Department student achievement initiatives, we reviewed the SST and District Review programs as case studies to determine how performance measures are being implemented.

District Reviews

The District Review Program is designed to provide local districts recommendations on how to implement or strengthen continuous improvement plans with an emphasis ODE's six district standards.¹³ Historically, the program has cost approximately \$500,000 annually.¹⁴ The work conducted for these reviews is typically done by third party contractors.

Our surveys resulted in feedback that identified several criticisms of the District Review Program. These issues resulted in the determination that the program did not meet the SMART criteria identified above. In particular, Districts identified issues that indicated the following criteria were not met:

¹² Doran, G. T. (1981). "There's a S.M.A.R.T. way to write management's goals and objectives". *Management Review*. 70 (11): 35–36.

¹³ District standards include: leadership governance and communication; curriculum and instruction; assessment and effective use of data; human resources and professional development; student support; and fiscal management.

¹⁴ During the course of the audit it was determined that no additional District Reviews would be conducted as ODE is merging two review programs.

- **Specific:** Districts felt that recommendations were too general and were not able to be acted upon;
- **Realistic:** Districts indicated that recommendations often were not useful in regards to hiring additional staff or that they included implementing antiquated programs; and,
- **Time-related:** Recommendations were not given in a time frame that would allow for implementation in a reasonable time frame.

State Support Teams

There are 16 regional SSTs across the state of Ohio that operate as a part of the statewide system of support for education. The SSTs work to coordinate with ODE and schools, families, and regional partners through a continuous improvement process to provide tiered support to Ohio's highest need districts. Some of the main areas of expertise within SSTs include Ohio's continuous improvement process, students with disabilities, early literacy initiatives, early learning and school readiness, and positive behavioral intervention and supports.¹⁵

SSTs receive funding from ODE in the form of a grant to execute their stated mission. SSTs are responsible for coordinating with ODE and schools, families, and regional partners to ensure each child in Ohio has access to a high-quality education. There are 16 regional SSTs across the state and these teams received more than \$33 million in FY 2020 for operational purposes.

OPT conducted a survey that was sent to district superintendents over the course of the audit, which 251 out of 600 completed. The survey captured responses pertaining to SSTs. The responses indicated that most were very familiar with the program and engaged with SSTs on a frequent or regular basis. Responses also reflected that most would like to engage with their SSTs more often, viewing the SSTs as very helpful.

ODE conducts annual evaluations of every SST to monitor performance with respect to the grant agreement between ODE and individual SSTs. Our review of the evaluation process for FY 2018 showed that the feedback ODE gave to SSTs was not fully in-line with SMART criteria. Specifically we found:

- **Assignable:** Improvement areas identified in FY 2018 evaluations did not specify who would complete each task and were not assignable.
- **Time-bound:** FY 2018 evaluations did not provide a time frame for correcting improvement areas, and the FY 2019 evaluations did not follow up on these metrics,

Conclusion

Across the 68 student achievement initiatives ODE identified, many were missing actionable indicators of program success or failure. Viewing the existing program reporting through the lens of SMART criteria helped to highlight specific shortcomings in the data currently being generated for ODE. These gaps in business intelligence constrain efforts to quantify year-over-year program improvement, as well as relative rankings of program effectiveness. ODE's current

¹⁵ SSTs also provide coaching, professional development and system structure support through a continuous improvement process. This helps support districts in implementing many of the 68 programs identified in this report.

data constraints have implications for agency budgeting, student performance, and public transparency.

Focused guidance from ODE leadership around the creation of quality business intelligence, such as adherence to SMART criteria, could strengthen some existing reporting functionality into truly actionable data, as demonstrated in OPT's analysis of District Reviews and SSTs. This would allow ODE to focus its financial and personnel resources on the more effective programs and initiatives, and combinations thereof, and potentially discontinue those that have lower or no impact.

Appendix B: Student Success

Below is the table which contains the districts which met the criteria for “high performing”. This criteria was having a PI Score that was above 100. This was determined through communication with ODE. A PI Score of 100 meant the district was proficient, so a score above 100 meant the district was above proficient.

High Performing Districts FY2019

District	County	Performance Index Score
Solon City SD	Cuyahoga	112.623
Rocky River City SD	Cuyahoga	109.385
Chagrin Falls Ex Vill SD	Cuyahoga	109.224
Madeira City SD	Hamilton	109.171
Ottawa Hills Local SD	Lucas	109.060
Beachwood City SD	Cuyahoga	108.523
Brecksville-Broadview Height	Cuyahoga	108.071
Marion Local SD	Mercer	107.973
Indian Hill Ex Vill SD	Hamilton	107.960
Bay Village City SD	Cuyahoga	107.715
Oakwood City SD	Montgomery	107.550
Mariemont City SD	Hamilton	107.391
Granville Ex Vill SD	Licking	107.297
Miller City-New Cleveland Local	Putnam	107.050
Minster Local SD	Auglaize	106.620
Russia Local SD	Shelby	106.455
New Albany-Plain Local SD	Franklin	106.019
Wyoming City SD	Hamilton	105.901
Ottoville Local SD	Putnam	105.871
Sycamore Community City SD	Hamilton	105.731
St Henry Consolidated Local	Mercer	105.529
Olentangy Local SD	Delaware	105.476
Avon Local SD	Lorain	105.415
Orange City SD	Cuyahoga	105.383
Kalida Local SD	Putnam	105.369
Highland Local SD	Medina	105.339
Wayne Local SD	Warren	105.221
Grandview Heights City SD	Franklin	105.144
Revere Local SD	Summit	105.095

Hudson City SD	Summit	105.068
Perrysburg Ex Vill SD	Wood	104.941
Fort Loramie Local SD	Shelby	104.787
Kenston Local SD	Geauga	104.784
Cuyahoga Heights Local SD	Cuyahoga	104.778
Canfield Local SD	Mahoning	104.553
Mason City SD	Warren	104.540
Avon Lake City SD	Lorain	104.454
West Geauga Local SD	Geauga	104.248
Steubenville City SD	Jefferson	103.913
Aurora City SD	Portage	103.883
New Bremen Local SD	Auglaize	103.804
Anthony Wayne Local SD	Lucas	103.600
South Range Local SD	Mahoning	103.575
Versailles Ex Vill SD	Darke	103.385
Westlake City SD	Cuyahoga	103.058
New Knoxville Local SD	Auglaize	102.883
Sugarcreek Local SD	Greene	102.553
Maplewood Local SD	Trumbull	102.432
Botkins Local SD	Shelby	102.376
Independence Local SD	Cuyahoga	102.176
Lake Local SD	Stark	102.149
North Royalton City SD	Cuyahoga	102.129
Anna Local SD	Shelby	102.093
Chardon Local SD	Geauga	101.796
Copley-Fairlawn City SD	Summit	101.743
Bluffton Ex Vill SD	Allen	101.722
Bexley City SD	Franklin	101.651
Hicksville Ex Vill SD	Defiance	101.602
East Holmes Local SD	Holmes	101.508
Upper Arlington City SD	Franklin	101.416
Jackson Local SD	Stark	101.279
Van Buren Local SD	Hancock	101.271
Norwayne Local SD	Wayne	101.118
Loveland City SD	Hamilton	101.111
Northwest Local SD	Stark	101.060
Eastwood Local SD	Wood	101.022
North Canton City SD	Stark	100.908
Forest Hills Local SD	Hamilton	100.806

Poland Local SD	Mahoning	100.694
Kings Local SD	Warren	100.688
Fort Recovery Local SD	Mercer	100.575
Twinsburg City SD	Summit	100.539
Chippewa Local SD	Wayne	100.529
Liberty Benton Local SD	Hancock	100.388
Springboro Community City SD	Warren	100.353
Archbold-Area Local SD	Fulton	100.339
Wadsworth City SD	Medina	100.297
Green Local SD	Summit	100.277
Miami East Local SD	Miami	100.169

Source: ODE

The following table categorizes the high performing districts based on expenditure per PI point. A lower amount spent per PI point indicates greater efficiency by the district.

High Performing District Expenditure/PI Scores FY2019

District	County	\$ / PI
Springboro Community City SD	Warren	\$86.92
Norwayne Local SD	Wayne	\$89.00
St Henry Consolidated Local	Mercer	\$91.32
Steubenville City SD	Jefferson	\$93.23
Bluffton Ex Vill SD	Allen	\$93.88
Avon Local SD	Lorain	\$94.12
Liberty Benton Local SD	Hancock	\$94.15
Highland Local SD	Medina	\$95.05
Wayne Local SD	Warren	\$95.64
Jackson Local SD	Stark	\$96.32
Marion Local SD	Mercer	\$96.83
South Range Local SD	Mahoning	\$97.93
Canfield Local SD	Mahoning	\$98.81
Lake Local SD	Stark	\$99.85
Minster Local SD	Auglaize	\$99.89
Poland Local SD	Mahoning	\$100.80
Northwest Local SD	Stark	\$101.47
Anna Local SD	Shelby	\$101.65
Kalida Local SD	Putnam	\$102.84
Chippewa Local SD	Wayne	\$103.14

Miami East Local SD	Miami	\$103.50
Green Local SD	Summit	\$103.88
Russia Local SD	Shelby	\$104.00
Fort Recovery Local SD	Mercer	\$104.68
Versailles Ex Vill SD	Darke	\$105.47
Wadsworth City SD	Medina	\$105.90
North Canton City SD	Stark	\$106.94
Perrysburg Ex Vill SD	Wood	\$107.10
Archbold-Area Local SD	Fulton	\$107.63
Anthony Wayne Local SD	Lucas	\$107.66
Kings Local SD	Warren	\$107.82
Avon Lake City SD	Lorain	\$108.72
Olentangy Local SD	Delaware	\$110.66
Sugarcreek Local SD	Greene	\$110.69
Botkins Local SD	Shelby	\$111.09
Mason City SD	Warren	\$112.22
Miller City-New Cleveland Local SD	Putnam	\$112.49
New Bremen Local SD	Auglaize	\$112.82
East Holmes Local SD	Holmes	\$113.39
Forest Hills Local SD	Hamilton	\$114.59
Twinsburg City SD	Summit	\$115.34
Chardon Local SD	Geauga	\$115.44
Fort Loramie Local SD	Shelby	\$115.91
Hicksville Ex Vill SD	Defiance	\$117.42
Granville Ex Vill SD	Licking	\$117.93
Ottoville Local SD	Putnam	\$119.23
Van Buren Local SD	Hancock	\$120.76
Eastwood Local SD	Wood	\$120.81
Madeira City SD	Hamilton	\$120.82
Maplewood Local SD	Trumbull	\$122.22
New Knoxville Local SD	Auglaize	\$122.96
Brecksville-Broadview Height	Cuyahoga	\$123.36
Loveland City SD	Hamilton	\$124.12
Aurora City SD	Portage	\$125.03
Wyoming City SD	Hamilton	\$125.74
New Albany-Plain Local SD	Franklin	\$125.99
North Royalton City SD	Cuyahoga	\$126.11
Oakwood City SD	Montgomery	\$126.79
Bay Village City SD	Cuyahoga	\$129.27

Rocky River City SD	Cuyahoga	\$130.72
Kenston Local SD	Geauga	\$131.12
Copley-Fairlawn City SD	Summit	\$131.49
West Geauga Local SD	Geauga	\$131.55
Revere Local SD	Summit	\$132.29
Mariemont City SD	Hamilton	\$133.21
Sycamore Community City SD	Hamilton	\$135.58
Hudson City SD	Summit	\$136.08
Ottawa Hills Local SD	Lucas	\$140.86
Solon City SD	Cuyahoga	\$141.16
Westlake City SD	Cuyahoga	\$143.14
Chagrin Falls Ex Vill SD	Cuyahoga	\$144.02
Bexley City SD	Franklin	\$150.33
Indian Hill Ex Vill SD	Hamilton	\$160.42
Upper Arlington City SD	Franklin	\$160.83
Grandview Heights City SD	Franklin	\$161.87
Independence Local SD	Cuyahoga	\$162.49
Cuyahoga Heights Local SD	Cuyahoga	\$170.62
Beachwood City SD	Cuyahoga	\$183.48
Orange City SD	Cuyahoga	\$232.59

Source: ODE

Below is the table containing the High Improving districts, as determined by our analysis. These districts were determined by setting criteria for PI Score and value-added over a specific time period, and identifying which districts met both criteria. The time period was FY17-FY19 based on communication with ODE, due to changes in tests impacting the value-added grades. Criteria for PI Score was the district had to have had an increase in PI Score from FY17 to FY19 of at least ½ a standard deviation of the FY19 PI Scores for all districts. This was approximately 5.00. Criteria for value-added was a two letter grade jump between FY17 and FY19. The list below is comprised of the only 15 districts that met both of these criteria.

High Improving Districts FY17-FY19

District	County	PI Score Change	FY19 PI Score	FY17 PI Score	FY19 Value Added	FY17 Value Added
Bristol Local	Trumbull	5.38	95.26	89.89	C	F
Chagrin Falls Exempted Village	Cuyahoga	5.39	109.22	103.83	A	D
Colonel Crawford Local	Crawford	5.01	90.21	85.20	C	F
Crestline Exempted Village	Crawford	5.65	76.92	71.27	C	F
Danville Local	Knox	7.39	86.93	79.55	C	F
Edison Local	Jefferson	6.86	90.28	83.41	B	F
Jennings Local	Putnam	9.54	96.69	87.15	B	F
Kenston Local	Geauga	6.06	104.78	98.73	B	F
Loveland City	Hamilton	5.89	101.11	95.22	B	F
New London Local	Huron	7.40	88.01	80.61	B	F
New Miami Local	Butler	6.11	77.00	70.89	B	F
St Clairsville-Richland City	Belmont	6.68	93.84	87.15	B	F
Toronto City	Jefferson	7.41	85.24	77.83	B	F
Vanlue Local	Hancock	9.63	90.19	80.55	B	F
Warrensville Heights City	Cuyahoga	8.85	67.87	59.02	A	F

Source: ODE

The following tables list improvement initiatives identified by ODE by program area.

Student Supports

Programs administered under the Center for Student Supports directly fund a variety of student needs such as nutrition, health care, and school safety & behavioral supports.

Program Name	FY20 Budget	Program Name	FY20 Budget
Early Childhood Education Grants and Technical Assistance	\$68,116,789	National School Lunch	\$418,643,500
Kindergarten Readiness Assessment	\$2,760,000	Fruit and Vegetable Consumption	\$4,911,207
Child Care Licensing	\$2,156,322	Child and Adult Care Food Program	\$110,121,168
Prevention Education	\$1,000,000	Special Milk Program	-
School Lunch Match	\$8,963,500	Summer Food Program	\$15,599,467
General State Support - Institution/CBDD Special Education Funding	\$33,000,000	Child Nutrition	\$11,469,730
Parent Mentor Projects	\$1,350,000	Homeless Children	\$3,295,203
School Psychology Intern Program	\$3,000,000	State Personnel Development Grant (SPDG)	\$2,000,000
General State Support – ESC Gifted Unit Funding	\$3,800,000	Head Start Collaboration Project	\$225,000
School Climate Grants	\$2,000,000	School Climate Transformation	\$1,226,602
Student Wellness and Success	\$275,000,000	Preschool Special Education	\$12,555,000
Child Nutrition Programs:	-	Individuals with Disabilities Education Improvement Act	\$454,770,591
School Breakfast	\$158,726,966	English Language Acquisition	\$10,500,000

Continuous Improvement

Programs administered under the Center for Continuous Improvement provide technical assistance to schools and manage grants related to school performance and improvement.

Program Name	FY20 Budget	Program Name	FY20 Budget
School Improvement	\$339,783	School Improvement Grants (SIG)	-
Community Schools and Choice Programs Administration	-	21st Century Community Learning Centers (Title IVB)	-
Academic Distress Commissions (ADC)	-	Expanding Opportunities for Each Child Grant Program: Leadership, Support and Technical Assistance	-
School Improvement - ESCs ¹⁶	\$3,500,000	Ohio Improvement Process	-
Quality Community Schools Support	\$30,000,000	School Improvement Diagnostic Review	-
Migrant Education	-	State Support Teams: Leadership, Support and Technical Assistance	-
ESEA Title IA	-	Charter School Program Grant	-
Rural and Low-Income Grants	-	Consolidated USDE Administration	-

¹⁶ Funds State Support Teams, but flows through ESCs, which serve as fiscal agents.

Teaching, Leading, and Learning

Programs administered under the Center for Teaching, Leading, and Learning include literacy grants, teacher evaluations, and adult learners & post-secondary education.

Program Name	FY20 Budget	Program Name	FY20 Budget
Striving Readers Comprehensive Literacy Grant	\$35,000,000 Sept 2017 to Sept 2021	Career Field Technical Content Standards	-
Comprehensive Literacy State Development Grant	\$42,000,000 Sept 2019 to Sept 2024	Educator Evaluation Systems	\$1,652,644
Model Demonstration Dyslexia Grant	\$1,200,000	Equity	-
STE(A)M Designation	-	Mathematics Modeling and Reasoning	\$100,000- \$150,000
Personalized Learning KnowledgeWorks partnership	Philanthropically Funded	High School Mathematics Pathways Initiative: Rethinking Algebra 2 Equivalency	Application for grant of \$4 million being submitted in 9/2020
Adult 22+ High School Diploma Program	\$6,900,000	Learning Standards & Model Curriculum	\$4,434,215
Adult Diploma	\$2,367,641	College Credit Plus	School Districts pay
High School Equivalency	\$300,000	Industry-Recognized Credential Implementation	GRF 200478 Industry-Recognized Credentials High School Students (\$8,000,000 for reimbursement remains)
Career-Based Intervention	\$1,795.11 per student	Credit Flexibility and Integrated Coursework	-
Career-Technical Student Organizations (CTSO)	-	Work-Based Learning	-

Performance and Impact

Programs administered under the Center for Performance and Impact evaluate performance at the student and district level.

Program Name	FY20 Budget	Program Name	FY20 Budget
Schools of Promise	-	National Assessment of Educational Progress (NAEP)	-
State Assessment	-	Regional Data Leads	N/A (although some federal grant funding will support RDL work in FY 21)
State Report Cards	-	Community School Sponsor Evaluation	-