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Analyzing Teacher Retention by Performance Level and School Need Examples From Maricopa County

Case Study

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Introduction

Teacher turnover can contribute to the inequitable access of poor or historically disadvantaged students to effective teaching. Research has shown that teacher turnover can disproportionately affect lower-performing schools (Ronfeldt, Loeb, & Wyckoff 2013) and schools with high concentrations of poor students or students of color (Allensworth, Ponisciak, & Miller, 2009; Hanushek, Kain, & Rivkin, 2004). Further, such schools often face persistent challenges in staffing their classrooms (Aragon, 2016). Reducing teacher turnover in these schools is one way to reduce the burden of constant re-staffing (Ingersoll, 2001). However, it is also important to recognize that some turnover can be beneficial, especially turnover of less-than-effective teachers (Finster, 2015a; Hanushek & Rivkin, 2010). When such teachers leave, the school or district has the opportunity to fill the vacancies with teachers who are more likely to be effective. Valid teacher evaluation, and other human capital management initiatives like performance-based pay, could also help to retain more teachers who are more effective and encourage those who are the least effective to leave.

Thus, it is important for schools and districts to monitor not only teacher retention and turnover as a whole, but also whether it is the more effective teachers who are being retained and the less effective teachers that are leaving. When districts introduce human capital management initiatives like more rigorous evaluation or performance-based compensation, it is also important to track whether retention of more effective teachers is improving. Prior briefs in this series (Finster, 2015 a, b) described in general terms how districts might go about improving teacher retention. This brief describes how the Maricopa County Education Services Agency (MCESA), a Teacher Incentive Fund (TIF) Round 3 and 4 grantee, worked with its program evaluator, Basis Policy Research, to investigate turnover by level of teacher effectiveness and assessed the effect of its teacher evaluation process on teacher retention.

Maricopa County and Its Evaluation/ Compensation Initiatives

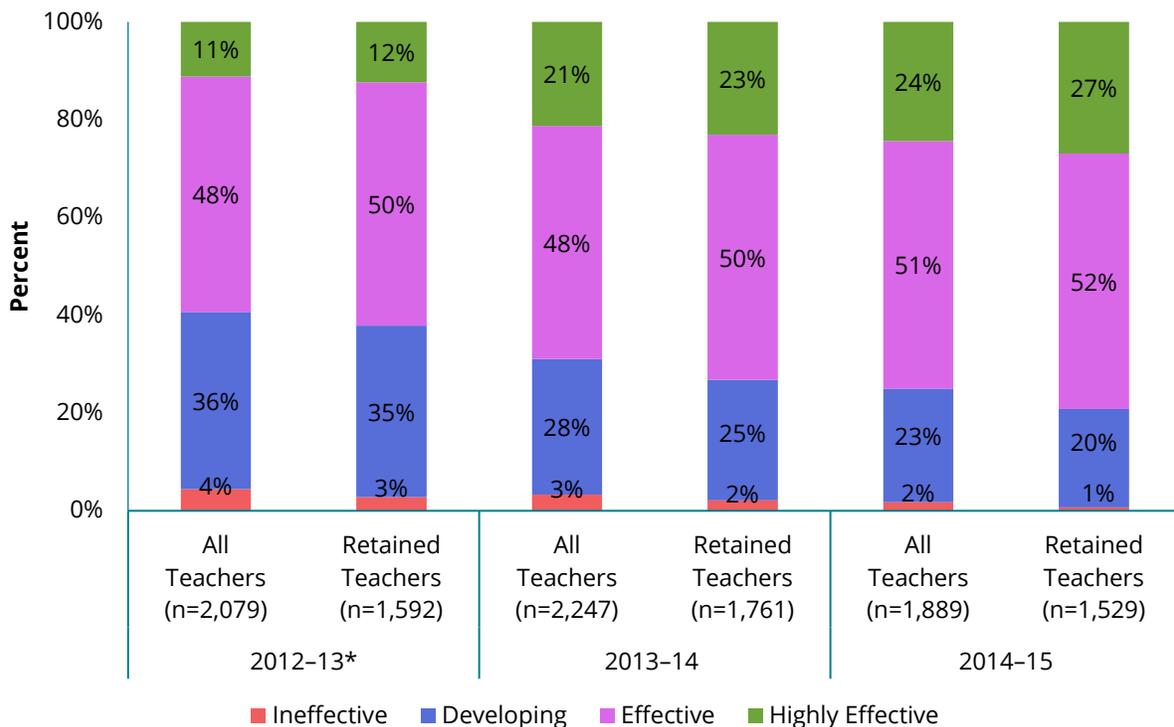
MCESA is a county-level organization that serves 58 school districts in the Phoenix metro and surrounding areas. MCESA received its first TIF grant in 2010 and followed up with a TIF 4 award in 2012. The TIF 3 grant was known as *Rewarding Excellence in Instruction and Leadership* (REIL) and the TIF 4 grant, *Rewarding Excellence in Instruction and Leadership – The Next Generation* (REIL-TNG). For the remainder of this brief, we refer to both programs as REIL. Across the two grants, 12 school districts partnered with MCESA to participate in the educator evaluation and compensation programs TIF supported. The REIL initiatives have combined a rigorous, valid, and reliable educator evaluation system with differential performance-based compensation and targeted professional learning to improve instructional practices and student outcomes. Through the REIL initiatives, MCESA has invested significant resources into evaluating and developing teachers. Given the level of effort expended, MCESA and its evaluator wanted to examine the effect of the evaluation process on teacher retention, as well as monitor the retention of effective teachers.

Teacher evaluation reforms are designed to increase student achievement through two pathways. One is through improving the instruction of existing teachers through frequent instructional feedback based on classroom observation. The second, acting over a longer term, involves identifying excellent teachers for recognition and rewards, improving their retention, and signaling to poor performers to improve or consider changing careers. We present analyses conducted to explore this latter, longer-term effect below.

Do Teacher Retention Rates Differ by Teacher Performance Classifications?

One approach for assessing whether districts are more likely to retain effective teachers compared with less effective teachers is to examine the distribution of performance classifications by year for all teachers and for retained teachers. Figure 1 presents the distribution of teachers by REIL Performance Classifications by school year. For each academic year, we present information in one column for all teachers and a separate column for retained teachers. The figure provides information about whether the distribution of performance classifications is different between all teachers and retained teachers. For example, in 2013–14 a total of 2,247 teachers received a REIL Performance Classification, and 21 percent received a Highly Effective rating. Between 2013–14 and 2014–15, 1,761 teachers returned to their school districts. Of the teachers who stayed, 23 percent had received a REIL Performance Classification of Highly Effective in 2013–14.

Figure 1. Distribution of REIL Performance Classifications for All Teachers and for Retained Teachers, by School Year

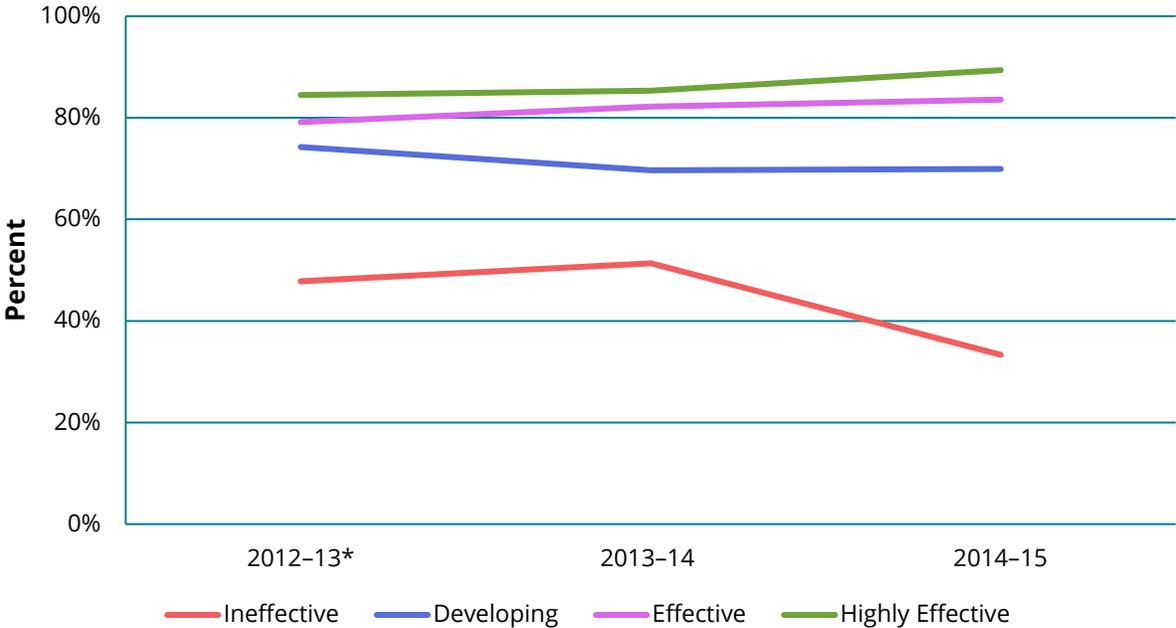


*Individual-level value-added model student growth was not included in Performance Classifications in 2012–13.

If the goal is to retain more effective teachers, the percentage of retained teachers in the top two performance classification categories should be higher than the percentage in those categories among all teachers. Figure 1 shows that in each academic year, a larger portion of the teachers who stayed were teachers who had received REIL Performance Classifications of Effective and Highly Effective. In 2012–13, 62 percent of retained teachers were in the top two categories compared with 59 percent of all teachers. In 2013–14, the difference between teachers who stayed and all teachers was 73 and 69 percent. In 2014–15, the difference was 79 and 75 percent. Overall, fewer teachers who received Ineffective and Developing REIL Performance Classifications stayed in their school districts, resulting in the proportion of retained teachers in the bottom two teacher effectiveness categories dropping in every academic year.

A second approach for examining whether more effective teachers are more likely to stay is to look at retention rates disaggregated by teachers’ performance classifications. Figure 2 shows the differences in retention rates by REIL Performance Classification over the three years with evaluation scores. In each year, the teachers who received the highest REIL Performance Classification, Highly Effective, were the most likely to return to their school districts in the following year. Specifically, ri.

Figure 2. Teacher Retention Rates, by REIL Performance Classification and School Year



* Individual-level value-added model student growth was not included in Performance Classifications in 2012–13.

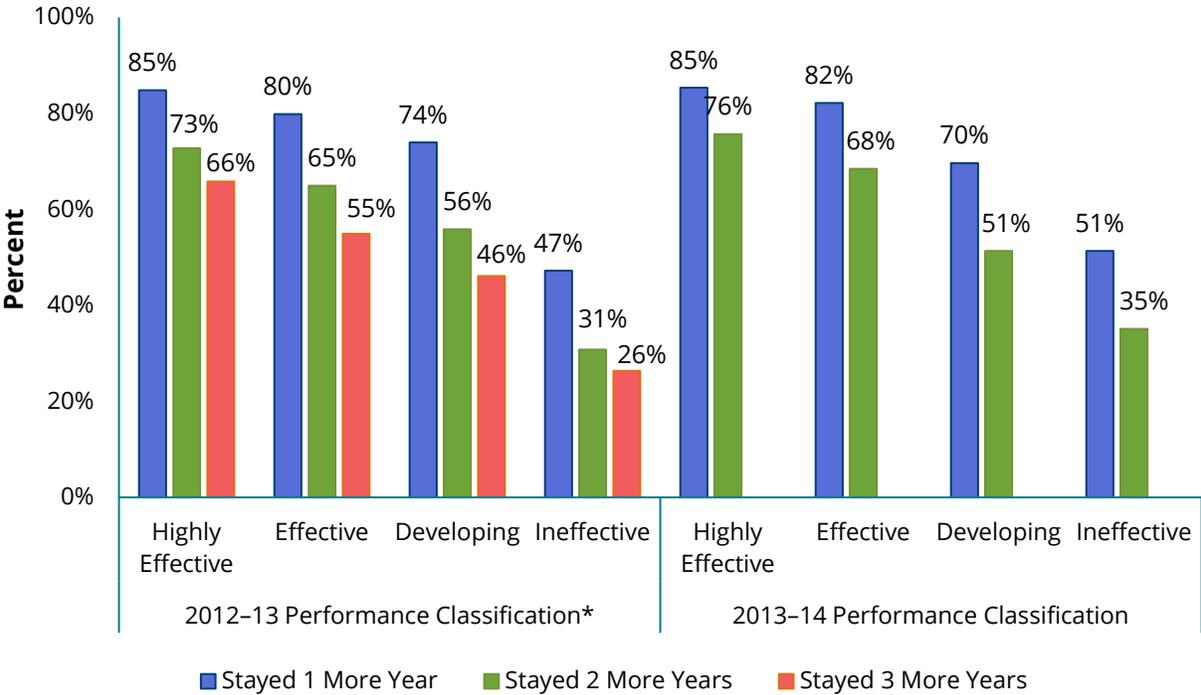
Conversely, the retention rates for teachers in the bottom two REIL Performance Classifications were lower in each academic year. For teachers in the Developing category, the retention rates hovered around 70 percent. Roughly 50 percent of teachers in the Ineffective category returned to their school districts after 2012–13 and 2013–14. After the 2014–15 school year, only 33 percent of Ineffective teachers returned to their school districts.

It should be noted that there are more teachers in the two highest REIL Performance Classifications and fewer teachers in the two lowest categories in each academic year, as the distributions in Figure 1 demonstrated. The Effective and Highly Effective REIL Performance Classifications include more teachers in each academic year, and Figure 2 shows that these teachers have higher retention rates. Retaining more of a steadily increasing group of Effective and Highly Effective teachers works like compound interest to improve the average quality of teaching. By retaining higher rates of the larger number of effective teachers, REIL school districts are changing the composition of the teacher force.

One final strategy for examining teacher retention is to look at retention over a long period. How many teachers in a cohort remain in their school districts one, two, and three years after the initial evaluation system implementation? We calculated these cumulative retention rates (also called stability rates) for the 2012–13 and 2013–14 academic years, where the teacher cohorts had more than one year of evaluation data. Figure 3 shows the retention of teachers after they received a REIL Performance Classification in a given year after one, two, and three years. For example, of the teachers who received a Highly Effective REIL Performance Classification in 2012–13, 85 percent returned to their school district after one year (in 2013–14);¹ 73 percent returned after two years (in 2014–15); and 66 percent returned after three years (in 2015–16). In comparison, teachers who received the Ineffective classification in 2012–13 returned to their school district at much lower rates. After three years, only 26 percent returned.

¹ This is the same as the one-year retention rate presented in the previous analyses.

Figure 3. Teacher Cumulative Retention (Stability) Rates, by REIL Performance Classification and School Year

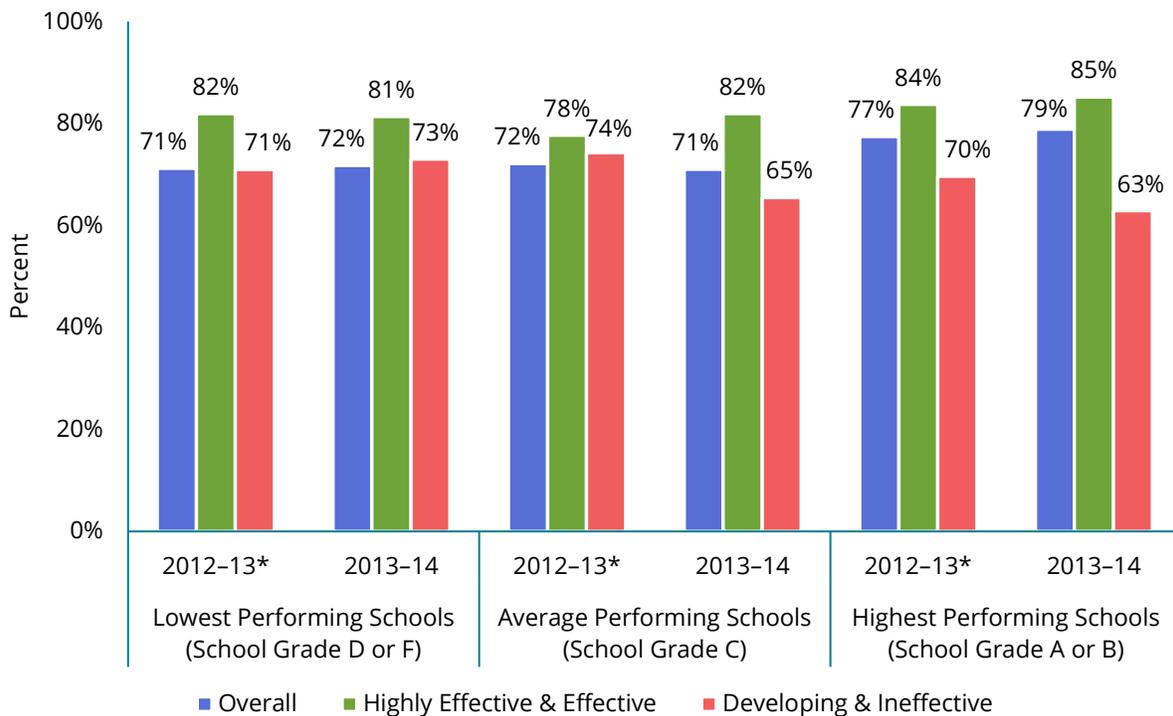


*Individual-level value-added model student growth was not included in Performance Classifications in 2012-13.

Do Teacher Retention Rates Differ by School Performance?

One of the goals of the REIL initiative was to increase the percentage of students in “high- need: schools with access to highly effective teachers. While high need is often defined by levels of school poverty or other student demographics, the REIL initiative defined high- need schools as schools that the Arizona Department of Education (ADE) labeled with grades of “D” or “F.” Thus, it was also important to assess retention of effective and highly effective teachers by school level of need.

Figure 4. Teacher Retention Rates, by School Need, REIL Performance Classification, and School Year



*Individual-level value-added model student growth was not included in Performance Classifications in 2012-13.

Figure 4 presents teacher retention rates for two academic years by the ADE A-F letter grades and teacher REIL Performance Classifications. The figure shows several interesting points. First, similar to the district-level retention results, retention of Effective and Highly Effective teachers at the school level was substantially higher than retention of Developing and Ineffective teachers. In both school years, whether the schools were in the lowest, average, or highest performance categories, the

retention rates for teachers with Highly Effective and Effective REIL Performance Classifications were 78 percent or higher, compared with 74 percent or less for Developing or Ineffective classifications.

Second, the difference in retention rates between Effective and Highly Effective teachers and Developing and Ineffective teachers was substantially greater in the highest-performing schools. This difference ranged from 14 to 20 percent in the highest-performing schools compared to 9 to 11 percent in the lowest-performing, indicating that retention of high-performing and attrition of low-performing teachers could be improved at those schools. The difference in retention was relatively stable for schools in the lowest-performing category, suggesting that those schools were not, on average, making progress toward better retention of effective teachers and attrition of lower performers.

Third, retention of Effective and Highly Effective teachers at average-performing schools increased over time. Retention of Developing and Ineffective teachers decreased, suggesting that these schools were making progress in reducing the retention of lower performers.

Of course, these patterns need to be considered along with data on teacher supply to the various categories of schools, since it is possible that schools in the lowest-performing categories have fewer teachers applying for vacancies, and this may discourage school leaders from counseling out lower performers. Overall, Figure 4 suggests that to improve access to highly-effective instruction, the lowest-performing schools need to increase the retention of effective teachers and look to replace less effective teachers with more effective teachers.

Conclusion

This brief described analyses schools and districts can do to examine whether they are retaining effective teachers, and how the introduction of human capital management initiatives such as more rigorous teacher evaluation relates to changes in retention rates for teachers at different levels of performance. Districts should examine yearly retention rates as well as cumulative retention, by performance level, both within schools and within the district as a whole. The analyses done for MCESA show that the percentage of retained teachers who are highly effective has increased, and the retention of ineffective teachers has decreased. This is preliminary evidence that MCESA's TIF district partners are moving along the long-term pathway to improved instruction: improving the retention of teachers who can implement the vision of quality instruction and reducing the retention of those that don't. Examining retention by performance level over time for high-need schools will also help show whether human capital management initiatives such as more rigorous evaluation or performance-based compensation are contributing to improving equity of students' access to effective educators.

MCESA and its partner districts have used the results of these analyses to monitor whether the evaluation process is contributing to improved average teacher quality and to examine how the TIF human capital management initiatives are impacting the distribution of effective teachers across schools. REIL districts and school teams are revising processes and procedures related to salary structures, school schedules, job descriptions, and hiring and placement. Based on the kind of information presented in this brief, MCESA and its partner districts have collaborated on strategies to extend the reach of effective educators to the neediest students. One strategy is to restructure the current career pathway so that excellent teachers are offered positions where they continue to teach in classrooms to impact students directly, but also take on leadership roles within the schools to work with other teachers and extend their instructional impact. As MCESA and its partner districts shift into a new TIF grant, the REIL performance-based compensation system has been revised to put more of an emphasis on retention stipends in order to reward and retain the best educators. Additionally, MCESA is in the process of developing a modified teacher observation instrument that includes a subset of elements from the full observation instrument that have been found to be related to the REIL student growth measures. With this modified observation instrument, REIL districts will be able to identify educators who are excelling or struggling with the instructional practices that may lead to improved student performance and target professional development support and decisions on retention and placement accordingly.

The analyses described are relatively simple to perform and, together with the availability of better measures of teacher performance, should open up promising avenues for districts and schools to take toward retaining a more effective faculty.

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Appendix 1

Data and Methods

Evaluation scores for teachers in REIL school districts were available for three school years, 2012–13, 2013–14, and 2014–15. The evaluation scores comprise two major components: classroom observation, measured by the Learning Observation Instrument (LOI), a MCESA-created rubric aligned to InTASC Standards, and student growth, measured by individual teacher and/or school value-added growth metrics. In 2012–13, the student growth component was based entirely on school-level value-added model scores. In 2013–14 and 2014–15, the student growth component was a combination of individual teacher and school-level student growth measures. Notably, the use of benchmark assessments and the development of custom assessments in non-traditionally-tested subjects resulted in an average of 75 percent of eligible teachers receiving an individual growth score in 2013–14 and 2014–15. MCESA used the evaluation scores in each year to assign teachers to Arizona’s state performance classification system of Highly Effective, Effective, Developing, or Ineffective.

For school performance, the Arizona Department of Education’s A-F letter grade accountability system was available for two years with evaluation scores, 2012–13 and 2013–14. The school grades are based on academic proficiency and student growth. For this analysis, we categorized schools that received grades of “D” or “F” as the lowest-performing schools. We categorized schools that received a grade of “C” as average-performing schools. We categorized schools that received grades of “A” or “B” as the highest-performing schools.

For the analyses in this brief, we defined teacher retention as teachers who teach in the same school district in consecutive school years. The Arizona Department of Education provided longitudinally linked personnel data that indicate where every public school teacher in Maricopa County taught for the school years 2012–13 through 2015–16. Note that 2015–16 personnel data allow for the calculation of 2014–15 retention results. By combining the longitudinal personnel data with three years of REIL evaluation scores, the following analyses are able to examine patterns of teacher retention disaggregated by teachers’ performance classifications and school performance levels.

Appendix 2

Calculating and Analyzing Teacher Retention Rates

Year-to-year teacher retention rates are calculated as the number of teachers who stay in a school or school district between two school years divided by the total number of teachers in the school or district in the first of the two school years. For example, to calculate the teacher retention rate for 2012–13, we used a count of the total number of teachers in the school or school district in the 2012–13 school year and the count of the total number of teachers who returned to the school or the school district in 2013–14. We divided the number of teachers who returned in the 2013–14 school year by the total number of teachers in the 2012–13 school year.

This brief compared the distribution of performance classifications for all teachers to the distribution of performance classifications for the teachers who returned to the school district in the subsequent academic year. In the first year of analysis, we calculated the distribution of all teachers by performance classification by dividing the total number of teachers in a given performance classification (e.g., Highly Effective) by the total number of teachers with performance classifications (i.e., Ineffective, Developing, Effective, and Highly Effective). We compared this distribution with the distribution of teachers who returned to the school district by performance classification, which we calculated as the number of teachers in a given performance classification (e.g., Highly Effective) who returned divided by the total number of teachers with performance classifications (i.e., Ineffective, Developing, Effective, and Highly Effective) who returned.

To examine teacher retention rates over time differentiated by performance classification, we calculated teacher retention for educators with different performance classifications for three academic years. The calculation followed the same process as calculating year-to-year teacher retention rates described above. However, instead of counting the total number of teachers, we counted the total number of teachers by performance classification in the first year and the total number of teachers by performance classification who returned in the second year. We divided the total number of teachers in each performance classification who returned by the total number of teachers in that performance classification in the first year. For this brief, we calculated the year-to-year teacher retention rate by performance classification for 2012–13, 2013–14, and 2014–15 and then displayed it as a line graph to assess differences between teachers with different performance classifications, as well as differences in retention rates within a performance classification over time.

The calculation of cumulative teacher retention rates requires additional data that identifies teachers who left after one, two, and three years. We first established the initial cohort year. We counted the total number of teachers in the school or school district in the initial cohort year. Then we counted the total number of teachers from the initial cohort year who returned to the school or school district one year, two years, and three years after the initial cohort year. For each of the subsequent years after the initial cohort year, we divide the total number of teachers who returned to the school or school district by the total number of teachers in the initial cohort year. For

example, to calculate the cumulative teacher retention rate for 2012-13, we got a count of the total number of teachers in the school or school district in the 2012–13 school year. This was the initial cohort year. Then, we counted the total number of teachers from the initial cohort year who returned to the school or school district in 2013–14 (the count for year one), 2014–15 (the count for year two), and 2015–16 (the count for year three). For 2013–14, 2014–15, and 2015–16, we divided the count of teachers who returned by the count of teachers in 2012–13. This gave us the cumulative retention rates for one year, two years, and three years.

The school-level analysis of teacher retention rates builds on the analytic strategies for overall year-to-year teacher retention rates by performance classification. We further disaggregated the teacher retention rates by performance classification by school-level grades. For example, to calculate the teacher retention rates for Effective and Highly Effective teachers in the highest performing schools between two school years, we counted the total number of teachers who received Effective and Highly Effective performance classifications in schools that received grades of “A” or “B” in the first year. Then we counted the total number of teachers who received Effective and Highly Effective performance classifications in schools that received grades of “A” or “B” in the first year and returned to the school district in the second year. We divided the total number of teachers who returned by the total number of teachers in that group in the first year to calculate teacher retention rate by performance classification and school-level performance.

The calculations and analyses this appendix describes are flexible and can be adapted by schools and school districts to analyze data relevant to their specific evaluation system.