

Year 2 Denver ProComp Evaluation Report:
Teacher Retention and Variability in Bonus Pay, 2001-02 through 2013-14

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Executive Summary

The proposed analytical work for the second year of the internal evaluation was organized around the relationship between ProComp, incentive pay, and teacher retention, which emerged in the course of the first year of work and in reaction to specific concerns expressed by DCTA and DPS stakeholders. We worked in collaboration with DPS administration (Shayne Spalten) and DCTA (Henry Roman) to delineate a Work Scope for the Year 2 Evaluation, which has led to the production of the current Report. The internal evaluation is intended to support decision-making of the Transition Team around implementation of the current ProComp Agreement. The three primary research topics concern:

- Focus Area 1: Teacher retention in the ProComp era;
- Focus Area 2: Teacher salary variability associated with ProComp; and
- Focus Area 3: The relationship between greater salary variability and teacher retention.

Prior to beginning the evaluation work proposed in each of the three focus areas, the Colorado Assessment Design Research and Evaluation (CADRE) Center met with DPS and DCTA stakeholders to follow up on the Year 1 report and further clarify Year 2 goals and data needs. In addition to requesting an update to the HR data set received to include 2013-2014, additional data sets and the administration of a survey and/or focus groups were requested following a joint review of the research questions and available data sets.

This report begins with an Executive Summary highlighting major takeaways related to the research questions posed in the Year 2 Scope. We then sequentially present findings related to the three focus areas listed above. The report also includes an appendix which provides the reader with the general trends in who receives ProComp incentives, how often, and how much. (This appendix is analogous to Chapter 1 from the Year 1 report.)

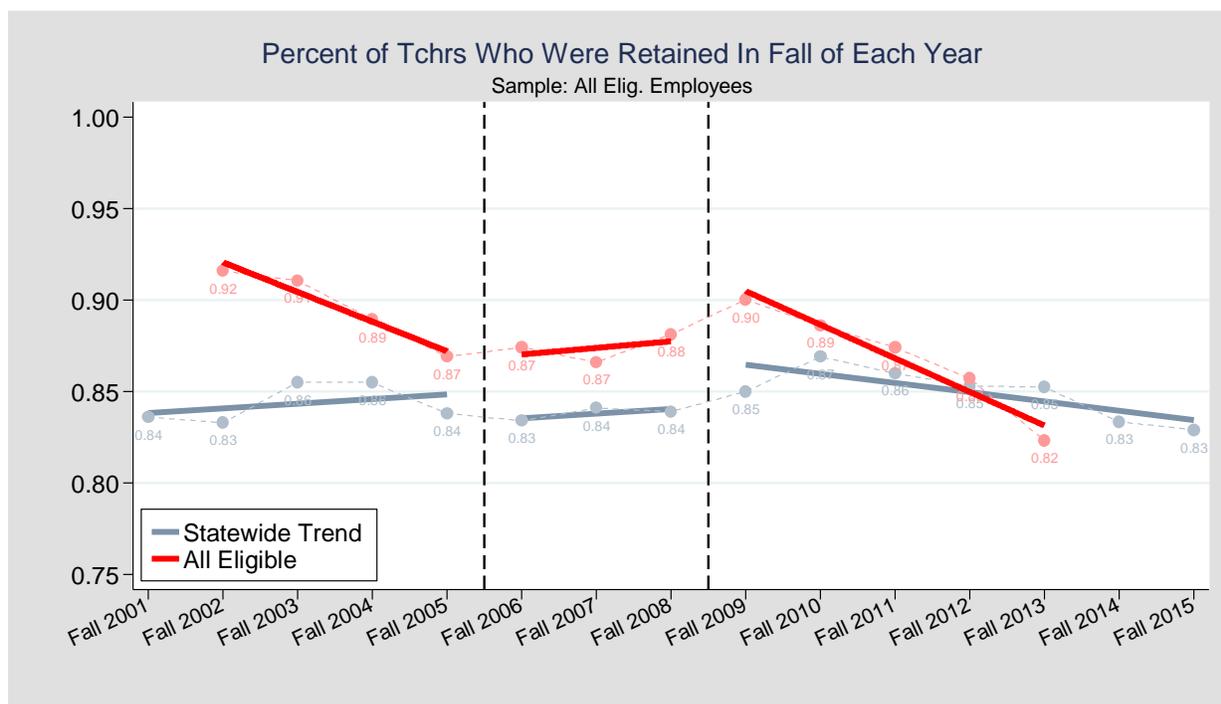
Focus Area 1: Teacher Retention in the ProComp Era

We present quantitative evidence about DPS's ability to retain more teachers to the district from 2001-02 through 2012-13, with an emphasis on whether the kinds of teachers who are being retained have changed over time. We explore whether ProComp could have had an observable impact on trends in teacher retention since it first started. A number of specific research questions were identified around the topic of teacher retention:

1. How has the ability of DPS to retain teachers in the district changed over time?
2. How do DPS's teacher retention rates compare to neighboring districts during the same time period?
3. How does the ability to retain more teachers to DPS differ by school type (e.g., elementary/middle/high school), or for schools serving historically disadvantaged populations (e.g., high minority, hard-to-serve, or turnaround schools)?
4. Have more "high quality" teachers been retained in DPS during ProComp years?

To begin, all teachers and student service professionals (SSPs) who are covered by the DCTA collective bargaining agreement are eligible to join ProComp. ProComp-eligible employees include social workers, psychologists, school librarians, nurses, therapists, and intervention teachers, in addition to conventional classroom teachers.¹ For the purposes of this analysis, the term “teacher” refers to all ProComp-eligible educators. Our dataset includes 13,520 unique teachers who were present at some point between 2001-02 and 2013-14. In any given year, between 4,500 and 5,300 teachers are present and eligible to participate in ProComp (see detailed discussion of sample sizes in Table 4 in *Appendix E: Overview of ProComp Incentives*).

Overall trends in teacher retention² in DPS (red line) and statewide in Colorado (blue line) are summarized in the following figure (see complete discussion of Figure 2 in full report):



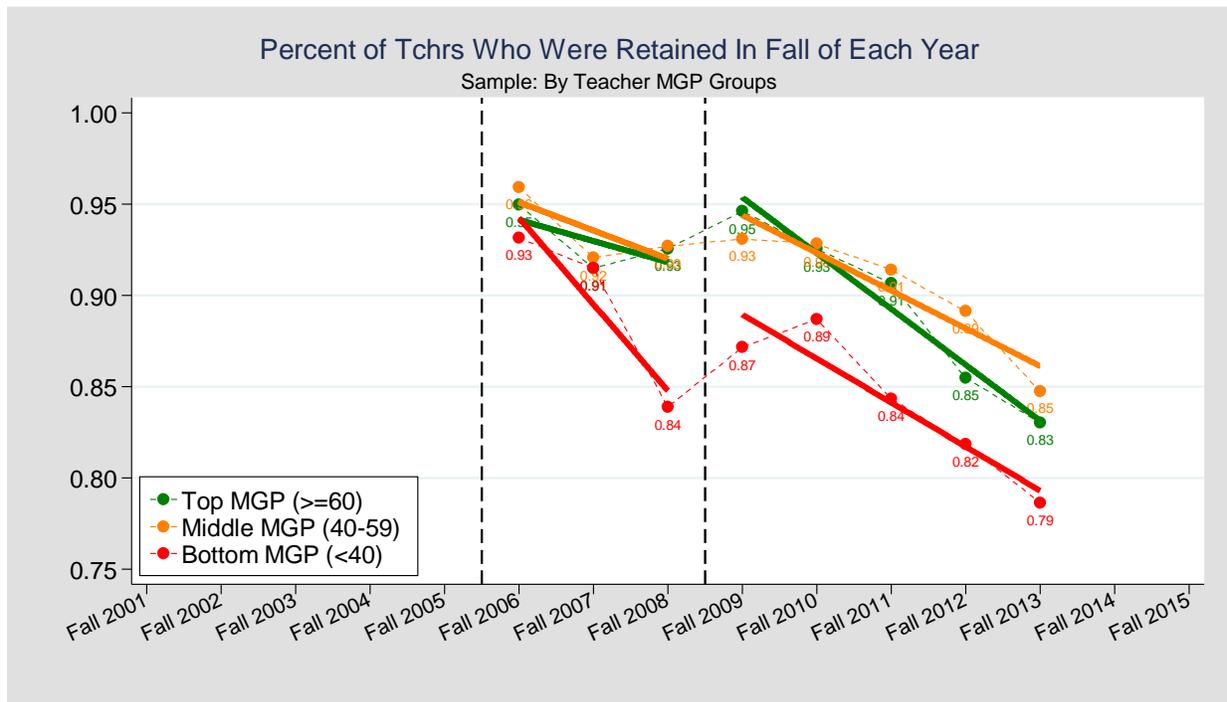
When reflecting on the reported trends in teacher retention in DPS, it is tempting to conclude that the initiation of ProComp during the 2005-06 school year caused fewer teachers to leave DPS: Prior to the onset of ProComp, teacher retention was trending downward, and we subsequently observe that the trend “flattens out” in the first three years of ProComp. There are two reasons why this may not be the appropriate interpretation of these retention patterns. For instance, we also see that, beginning just after ProComp was fully implemented in 2008-09, DPS retention rates began to decline again. It is possible that ProComp had an initial positive impact on decisions to remain in the district, but that impact has dissipated in more recent years.

¹ Charter school employees, however, are not eligible to join ProComp.

² In 2014, Dr. Eleanor Fulbeck published a peer-reviewed article on teacher mobility and financial incentives in the context of Denver’s ProComp system. Similar to the current report, she explores labor market dynamics in relation to the onset of ProComp. Our findings for overall estimated retention trends differ from those estimated in Dr. Fulbeck’s article², and therefore in the main body of the narrative surrounding Figure 1 we take some time to delineate reasons why the findings do not match up.

The second relevant factor is that *all* teacher labor markets were affected by the economic recession in 2008-09, and many school districts exhibited a teacher labor market retention pattern consistent to the one seen here in DPS. Indeed, the blue line in the Figure above represents statewide teacher retention, and we see that the pattern in DPS follows the statewide line quite closely through 2009. However, between 2009 and 2013 retention at DPS has decreased at a rate faster than the rate throughout the state, and this may constitute a worrisome trend. In the analyses that follow, we also present teacher retention rates from several neighboring school districts to see if the local teacher labor market shows a similar result. In sum, we are more inclined to believe that the apparent drops in teacher retention that coincide with the onset of ProComp may instead be a reflection of larger labor market constraints related to the economic recession, and DPS trends since 2009 are not indicative of a positive effect of ProComp on teacher retention.

Finally, it is worth mentioning that the objective of human resource management policies like ProComp is not necessarily to retain as many teachers in the district as possible. Instead, it would be more optimal if the District’s compensation strategy encouraged the most effective teachers to remain and discouraged the least effective teachers from doing so. In this report, we also explore, for a subset of 4,109 teachers who teach in subject areas with state test scores, whether teachers who are in the top third of the median student growth percentile (MGP) distribution are retained in DPS at higher rates than teachers in the bottom third. We find that, during the ProComp years, teachers with low MGPs have a 5 percentage point *higher* probability of leaving DPS than teachers in with high MGPs (see Figure 6, reproduced below).



This is potentially consistent with the hypothesis that ProComp differentially retains more effective teachers, however it is also possible that these top-third MGP teachers would have remained in the District at higher rates even in the absence of ProComp.

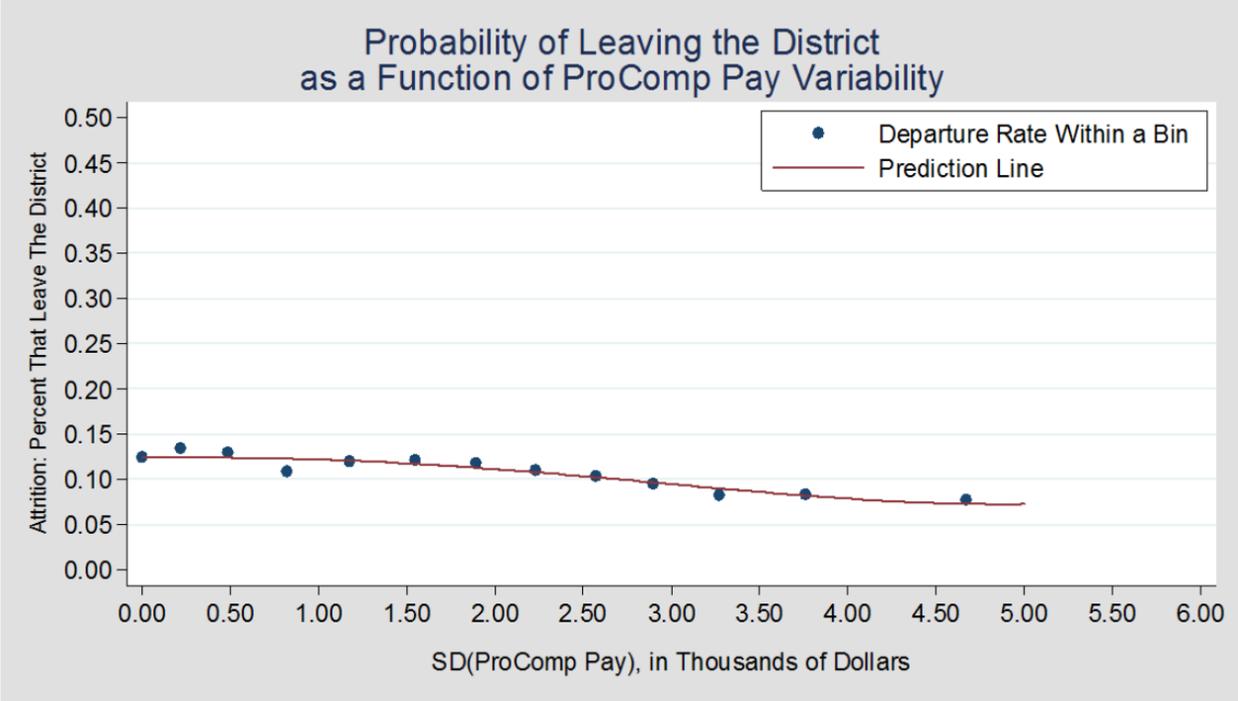
Focus Area 2: Teacher Salary Variability due to ProComp

A major focus of work from the first year of the internal evaluation was the nature of incentive pay variability and the distribution of bonuses under the ProComp system. A new set of research questions emerged from this work, concerning the ways in which teachers perceive the nature of the incentive system and the year-to-year variation in their own salaries. The original Year 2 Work Scope included conducting focus groups and/or surveys with DPS teachers, however our district collaborators ultimately requested that we not conduct those data collections. Without conducting teacher surveys or focus groups, it was not possible to characterize teachers' qualitative perceptions of ProComp payments, their fairness, their relation to effort, and the role of bonus pay in terms of remaining at the district. Nonetheless, we were able to quantify teachers' "experience" of ProComp salary variability (e.g. the variation in incentives and total compensation received by a given teacher).

We find that the median size of teacher ProComp payments have increased since the program began, both in terms of one-time bonuses and base-building incentives. In particular, we observe a sizable jump in the size of incentives earned starting in the 2008-09 school year, as ProComp entered its full implementation phase. The total size of ProComp payments varies more across teachers in each school year than was originally the case in the early years of ProComp. Teachers are likely to experience large swings in their ProComp payments from one year to the next: The median teacher's standard deviation of ProComp payment is approximately \$2,700. This suggests that teachers may find it difficult to anticipate how much their total compensation is likely to be from one year to the next. In Focus Area 3, we consider the hypothesis that that compensation variability could frustrate teachers and induce them to leave the district.

Focus Area 3: The Relationship between Greater Salary Variability and Teacher Retention

We do not find evidence that teachers who have experienced more variability in ProComp payments to date are more likely to leave the district (see Figure 14 from the full report, reproduced below).



If anything, higher variability appears to be associated with lower propensities to leave. We caution against making definitive causal claims—e.g., we are not able to definitively claim that teachers would have been more likely to remain in the district had they experienced greater ProComp payment fluctuations. However, the first order evidence appears inconsistent with the concern that volatility in pay is associated with a level of frustration that causes teachers to leave the district.