

# STUDENT ACHIEVEMENT AND TEACHER TURNOVER

WHAT IS THE LINK?



Teacher turnover is often cited as problem for schools yet there is little evidence documenting the actual effect on student achievement. **Susanna Loeb, Matthew Ronfeldt and James Wyckoff** analyse data from New York City to investigate the impact of teacher turnover on student achievement.

**Researchers and policy makers often assume that teacher turnover is a problem for schools, particularly for schools with a high population of disadvantaged students.** Theoretically, turnover could be either problematic or beneficial for students. Turnover changes the composition of the teachers at the school and depending on whether the new teachers are higher or lower quality than the teachers who left, the overall ‘compositional’ effect of turnover on student learning could be either positive or negative.

Turnover may also have broader implications for schools. For example, it could have a ‘disruptive’ effect on staff cohesion and community, which would affect all teachers, including those retained from year-to-year, and their students. This disruptive effect could be positive if the new teachers brought new and productive ideas or it could be negative if important institutional knowledge was lost.

Given the theoretical uncertainty surrounding turnover, we empirically investigate the effects of turnover on student achievement and begin to explore possible mechanisms by which turnover might affect students.

This study draws on extensive administrative data from New York City. Our analyses focus on approximately 850,000 observations of 4th and 5th grade students over eight academic years. The data include student test scores in math and reading, as well as class, school, and teacher characteristics.

First, we investigate the effects of differences in turnover rates between years in the same school-grade. Then we examine the effects of differences in turnover rates between grades in the same school-year. These approaches minimises the possibility

that our results are driven by influences other than turnover. For instance, by comparing school-grades within the same year, we eliminate the possibility that our results are actually picking up the effect of a new principal who affected both turnover and achievement, because this principal would affect all grades at once.

## Turnover has a negative effect on student achievement beyond what can be explained by experience and teacher migration.

As expected, we find that there is a significant amount of turnover in New York City. Each year, school-grades experience an average of 11-13 percent turnover and around one percent of 4th and 5th grade level teams experience 100 percent turnover each year.

This turnover, on average, appears to be bad for students. The results consistently indicate that student achievement is lower when turnover is higher, particularly in math. For example, the results imply that in a given grade level with five teachers, reducing teacher attrition from two teachers to none leaving would increase student math achievement by two to four percent of a standard deviation. This effect is similar in magnitude to the difference in learning between low-income students (those eligible for free or reduced price lunch) and other students. Furthermore, turnover appears to be particularly problematic at schools with

large populations of disadvantaged students.

We are unable to examine exactly how turnover affects students so we ran additional analyses to get a sense of the whether the effects are compositional or disruptive in nature. One way new teachers may differ from the teachers they are replacing is in terms of experience. When we control for teacher experience in our models, the effects of turnover shrink but remain substantial, suggesting that changes in the distribution of teacher experience (i.e. novice teachers replacing tenured teachers) explain some, but not all, of the effects of turnover on student achievement.

It is also possible that teachers who transfer across schools, regardless of experience, are generally less effective in their first year at the new school. Again, while this does appear to play some role, turnover has a negative effect on student achievement beyond what can be explained by experience and teacher migration.

An alternative way to capture the compositional changes brought about by turnover is control directly for teacher effectiveness. While we do not have a perfect measure of effectiveness we can measure the test-score gains of students in the teacher’s

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classrooms in prior years adjusted for the students’ background characteristics.

Similar to the teacher experience results, we find that differences in teachers’ >

effectiveness as a result of turnover can explain some, but not all, of the effects of turnover on student achievement. This partial explanation is true for both the entire population of schools and lower-achieving schools in particular.

While it appears that under-served schools do tend to fill vacancies with relatively less effective teachers, this is not the entire story. To examine this further, we separately investigate the effects of turnover on the students of teachers who remain in the same school-grade from year-to-year and are not actually a part of the turnover. We consistently find that students of 'stayers' perform worse when turnover is greater, particularly in lower-performing schools. This result bolsters our previous findings and points to teacher turnover having a wider disruptive effect on the school which is harmful to student achievement.

Although teacher turnover may be beneficial in some cases, we find that, on average, turnover is detrimental to student learning. When teachers leave schools at high rates student learning drops. Furthermore, the effects of turnover extend beyond the

compositional changes to teachers and include broader-reaching disruptive effects.

Given the harmful nature of turnover, policies designed to increase teacher retention are a promising avenue to improve student achievement. For instance, schools could implement incentive structures aimed specifically at highly effective teachers who might otherwise leave. Such policies may be especially important in schools with large populations of disadvantaged students, where turnover is particularly problematic. A second potential approach to mitigating the effects of turnover is to plan for turnover, assuring that the institutional knowledge that traditionally has left with the departing teacher remains in the school and is more easily passed on to new workers.

This article is based on '*How Teacher Turnover Harms Student Achievement*', a working paper by Ronfeldt, M., Loeb, S., Wyckoff, J. (2012), [www.cepa.stanford.edu](http://www.cepa.stanford.edu).

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