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**Direct and reverse causality between teachers effect and student performance**

**NON-TECHNICAL SUMMARY**

Measuring teachers' effect on students' performance across public schools is essential for the assessment of the efficacy of resources spent on teaching staff. But measuring teachers' effect on students' performance is a challenging endeavor due at least to two facts. First, both students and teachers tend to choose schools according to the same criterion meaning that students' and teachers' quality are correlated. Second, the available measures of students' performance and teachers' quality might not accurately reflect the true variations across schools.

The paper investigates teachers' effect on value added gains by students in schools from upper secondary level in Romania. The investigation proceeds in three steps. The first step unveils the institutional induced incentives for students' and teachers' matching with schools and reveals the degree of the correlation between students performance and teachers' quality. The second step is trying to counter the correlation problem by separating the analysis of teachers' effect on students' value added gain on initial score intervals and allowing a non-linear relationship between the initial score and the value added gain in students' performance. The third step attempts to counteract the blurring effects on the accuracy of measuring teachers' quality and student's value added gains by introducing a metric test, which uniquely reflects quality differences.

The findings suggest that students and teachers tend to choose schools according to their community determined ranking. The common preferences are conducive to the development of the highly ranked schools and the disappearance of the others that have a lower rank. However, there are certain conditions that impede students and teachers from accessing highly ranked schools. Students from poor families cannot compete for entry into the highly ranked schools, since they cannot afford the private tutoring that would complement the instructional quality they received in

schools that makes these students more competitive in the education system. In addition, newly qualified teachers might not be able to gain positions in the highly ranked schools when there are no vacancies or might not want to enter such schools when there are only part time vacancies available. For new teachers, the preference for a full time job in any school is greater than the preference for a part time job in a highly ranked school.

Under these conditions, the investigation leads to the conclusion that comparative teachers indeed contribute significantly to students' value added relative to that of their peers located at the same place in admission test score distribution.

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