SREE 2020 Conference
"In the Pipeline" Poster Session for Works in Progress
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Title: Using Research Evidence to Understand Why Some Charter Schools Outperform Others

Background/Context: Charter schools vary substantially in their quality and approach to education. Therefore, it is not surprising that studies have found substantial variation in charter school effects. For example, IES's Evaluation of Charter School Impacts found substantial variation in impacts on students' math and reading achievement across the charter schools participating in the study (Gleason et al., 2010; Clark et al., 2015). On average, the impact of these schools on student achievement was approximately zero in both subjects. However, the impact estimates varied from large positive impacts to large negative impacts. The authors found more favorable impacts on math achievement for charter schools in urban areas and charter schools serving higher proportions of low-income and low-achieving students; they also found more favorable impacts for smaller charter schools and charter schools that use ability grouping in their math or English classes.

However, presumably, the impacts of charters depend in heavily on the characteristics of the regular public schools from which they draw. Weiss, Bloom, and Brock (2014) indicate that the impacts of interventions should depend on both the treatment received by the treatment group *and* the treatment received by the control group. In addition, they highlight the importance of the treatment contrast—or difference in treatments between the two groups—as a key driver of both the average impact—and thus a key driver of impact variation across sites.

Purpose/Objective/Research Question: The purpose of our study is to test the relative importance of (1) the educational features of charter schools and (2) the educational features of nearby public schools in explaining why some charters outperform others. In addition, we will examine how much of the variation in charter school impacts can be explained by the difference in educational features between charter schools and nearby public schools.

Setting/Population/Participants/Subjects: Our study will reanalyze data from IES's Evaluation of Charter School Impacts, a national study conducted in 32 charter middle schools across the country. The study sample included 2,330 students who applied to one or more of these 32 charter schools. Participating charter schools differed from charter middle schools nationwide in a few notable ways. For example, they had smaller shares of students who were African American, low-achieving based on state tests, and eligible for free or reduced-price school meals.

Intervention/Program/Practice: The charter schools participating in the study varied considerably in their educational features. For example, just over a third of these charter schools used ability grouping in at least some of their math classes, about the same fraction kept students with the same teachers across grade levels, and almost three-quarters used interdisciplinary teaching to organize their classrooms (Gleason et al., 2010, Table E.10). Compared with other public schools nearby, these charter schools were smaller, had longer school days on average, were more likely to emphasize some special program, and were less likely to offer programs for gifted and talented students or students with Limited English Proficiency.

Research Design: The Evaluation of Charter School Impacts was a randomized trial based on admissions lotteries. Students who applied to these schools were entered into lotteries for admission. Students admitted by lottery were included in the treatment group; lottery-participants who were not admitted were included in the control group.

Our reanalysis of the data from this study benefits from the fact that the original study collected rich data on the characteristics of regular public schools attended by students in the control group. Surveys of the principals of the students attended by charter school and regular public school students allow us to characterize both the charter schools attended by lottery winners as well as the regular public schools attended by lottery losers. This allows us to compare the two sets of characteristics and determine which set has more predictive power in explaining the variation in impacts across charter schools.

Analysis: For the analysis, we will use Lasso regression to identify the most important predictors of charter school impacts. This approach will help us to address the challenge of having more predictor variables than charter schools in the sample, and to avoid estimating models that suffer from overfitting. As potential predictors, we will include three types of variables: (1) characteristics of the charter schools, (2) characteristics of the nearby public schools, and (3) differences between those two sets of characteristics. All three types of variables will be fed into a Lasso algorithm to select the most important predictors and develop a model for predicting charter school impacts.

Findings/Results: We plan to present findings that identify which variables were selected as being most predictive of charter school impacts. In addition, we will indicate which types of variables explain the largest share of the variation in impacts across charter schools: (1) characteristics of the charter schools, (2) characteristics of the nearby public schools, and (3) differences between those two sets of characteristics. At the conference poster session, we plan to summarize our progress. We look forward to input from our SREE colleagues as we work to complete the study.

References:

Clark, M. A., Gleason, P. M., Tuttle, C. C., & Silverberg, M. K. (2015). Do charter schools improve student achievement?. Educational Evaluation and Policy Analysis, 37(4), 419-436.

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