Research Proposal Title: "Do Remediation Classes Improve Student Learning in Developing Countries?
Evidence from Pakistan"
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Data from developing countries show that while school enrollments in these countries have gone up as a result of the Millennium Development Goals, student learning has remained sub-par (Glewwe and Muralidharan, 2016). With around half of the children in Grade 5 who are unable to demonstrate learning levels expected from Grade 2 children, Pakistan does worse than many other countries in terms of student learning (Andrabi et al., 2007). Further, large disparities in learning exist between girls and boys Pakistan. For instance, 49 percent of boys aged 5-16 years can perform simple arithmetic whereas only 41 percent of girls can do so (ASER, 2016).

An important question for policymakers then is to improve the learning outcomes of students using cost-effective policy interventions. This question is especially important in developing countries like Pakistan since governments in these countries generally operate under tight fiscal constraints. One such cost-effective policy intervention aimed at improving the learning of students is remediation classes whereby poor performing students are given extra class time to improve their learning. In this research project, I aim to empirically estimate the causal impact of a similar remediation project on subsequent student learning outcomes. The *Uraan* remediation program provides remediation classes to poor-performing students of The Citizens' Foundation (TCF), the largest school-based NGO in Pakistan with over 1500 schools spread across the country that provides education to approximately 220,000 children from poor households.

The literature on remediation classes and their impact on student learning in developing countries is sparse (Banerjee et al., 2007). A key empirical challenge when evaluating such programs is the issue of selection. A simple comparison between the outcomes of students who received remediation classes to those who did not will give us biased and uninformative estimates of the impact of the program since these students may differ on several unobservable characteristics that may affect their learning outcomes and the probability of being selected into a remediation class.

A key feature of the *Uraan* remediation program, which allows me to circumvent the selection issue, is that the number of students in a given remediation class is limited to seven. This implies the existence of a within-class rank threshold whereby students below this threshold are given remediation classes and students above this threshold are not. Given this setting, I aim to test the efficacy of a remediation program on a range of student learning outcomes using a Fuzzy Regression Discontinuity Design (RDD).

To proceed with my analysis, I have drawn a sample of around 100 schools and plan to collect data on approximately 15,000 students for the past year for which the program has been in place. A major challenge in obtaining student data is that student scores and remediation status are recorded as hard records and are kept at the respective schools. The data collection procedure thus involves visiting these schools and digitizing student records from hard copies of these records stored in schools spread over a large geographical area. I will thus use the generous contributions from the American Institute of Pakistan Studies Short-term Research Grant to visit these schools and collect the data required to conduct my study.

This research is important for policy. Pakistan does worse than many other countries in terms of providing quality education to school-going children. It also one of the few countries that were not able to meet their Millennium Development Goals. Given that the governments in developing countries in general, and Pakistan in particular, operate under strict budget constraints, a key question for policymakers is to improve student learning using cost-effect policy tools. My research project focuses on testing a cost-effect policy tool aimed at improving the educational outcomes of students in Pakistan and one which can easily be scaled up in many public schools where students generally underperform.