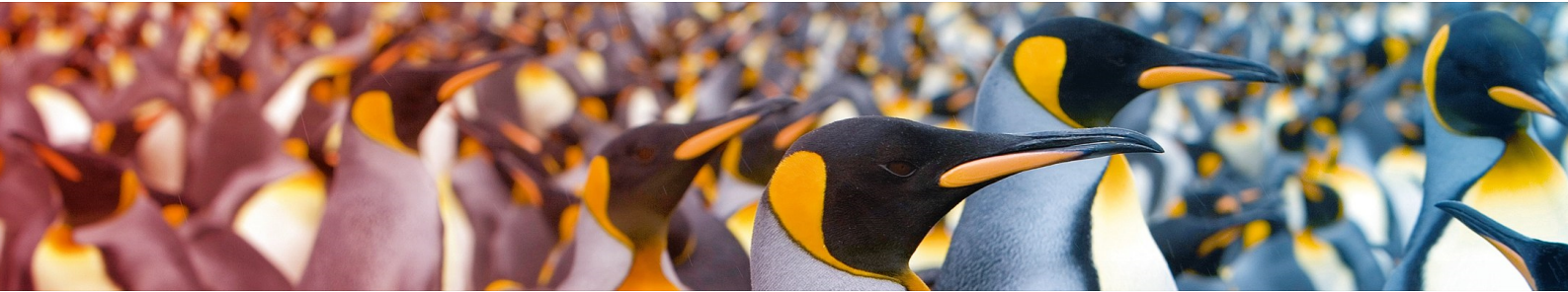# INTERNATIONAL RESEARCH SEMINAR

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Centrality-Based Spillover Effects

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Abstract

We study the role of social network structure in peer-to-peer educational spillovers by leveraging a two-year field experiment in primary schools in rural Bangladesh. We implement a randomized educational intervention–the provision of free after-school tutoring–offered to a random subsample of students in treatment schools. We exploit the experimentally induced across-classroom variation in the centrality of treated students to provide the first causal evidence of centrality-based spillover effects. We find that a one standard deviation (SD) increase in the average centrality of treated students within a classroom leads to improvements in the test scores of their untreated classmates of 0.57 SD in English and 0.62 SD in math. Further evidence indicates that more central students have higher academic ability, better social skills, and interact more with classmates on matters related to learning, which suggests that they can be more influential for their peers. In addition, we offer the private tutoring intervention to the most central students on a separate group of schools. We find that this targeted approach provides larger educational benefits both for treated and untreated students than the policy that treats a random subset of students. We conclude that targeting the most central students in a network to offer an intervention can be a cost-effective way to improve the educational outcomes of all students in a classroom.