Leveraging Teacher Incentives to Improve Student Performance and Reduce Dropout in Uganda

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Sector(s): Education

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Research Papers: Educator Incentives and Educational Triage in Rural Primary Schools

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Primary school teachers in Uganda face public scrutiny and high pressure around primary school exit exam results. As a result of the incentives around students being successful on this exam, teachers focus their energy on students who could receive passing marks and encourage lower-performing students to drop out prior to taking the exam. Researchers evaluated whether an alternative teacher incentive scheme, providing rewards based on the performance of all students, could help reduce dropout and improve student math learning. Introducing the pay-for-percentile incentive scheme reduced overall student dropout rates. However, these reductions were driven almost entirely by students at intervention schools with math textbooks. Among schools with math books, the incentive scheme also improved the math achievement for higher performing students.

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Although many low-income countries provide free primary schooling, primary achievement levels remain low, and primary dropout rates remain high. In particular, several countries in Africa find enrollment drops sharply between the penultimate and final grades of primary school. One reason for this trend could be that schools face considerable pressure and public scrutiny for their students' performance on their primary school exit exams, which students must pass to attend secondary school and certify primary school completion. This scrutiny could trickle down through district officials to teachers who allow unprepared students to enter the final grade of primary school and take the exit exam. This pressure could incentivize teachers to devote additional time and energy to students who could receive passing marks on these exams and encourage low-performing students to drop out prior to taking exit exams. Could an incentive scheme for teachers that provides rewards based on the performance of all

students reduce dropout and improve student learning?

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In Uganda at the time of the study, almost all children enrolled in primary school, but fewer than 60 percent completed all seven years, and only 22 percent enrolled in secondary school. In their last year of primary school, at the end of grade 7, students take the national Primary Leaving Exam (PLE) to determine whether they receive a primary education credential and can access secondary schooling. Although the Ugandan education system does not explicitly assess schools based on the results of this exam, the government publicizes school-level results. These results receive considerable local news coverage, and education officials often sanction school administrators and teachers in schools where significant numbers of students fail the PLE.

This system creates incentives for educators to urge weaker students to drop out of school before they reach the PLE exam. For example, teachers may devote less attention to weaker students, or encourage weaker students to drop out of school and seek jobs or vocational training instead. Head teachers could require weaker students to repeat grade 6 or inform them that they are unlikely to proceed to grade 7, thereby demotivating them and encouraging their dropout.



Primary school teacher and students in a classroom in Uganda.

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To address higher dropout rates in the year before the PLE exam, researchers evaluated the impact of a “Pay for Percentile” (PFP) teacher incentive program on student dropout, performance, and transition to secondary school in Uganda. The program

rewards teachers based on how their students perform against comparable students from other schools. Among 302 rural government primary schools, researchers selected a random half to implement the new incentive program among math teachers in grade 6 classrooms. These schools were the intervention group. The other schools did not implement the program and formed the comparison group.

Near the beginning of the 2016 school year, researchers established leagues of students with similar baseline learning levels by administering a math exam to all students in grade 6. The math exam covered material from the Ugandan curriculum ranging from grade one through grade 6. Near the end of the year, students completed another exam with similar material coverage. Researchers gave each student a percentile rank based on performance relative to other students in their same league.

Each grade 6 math teacher in the intervention schools received a bonus based on how well each student on his/her roster performed relative to students from other schools within the same league. If a student was absent on the day of follow-up testing, that student received a score of zero, thus penalizing teachers when their students dropped out or attend school infrequently.

This reward system aims to incentivize teachers to keep their students in school and to invest time and effort in all students, including lower-performing ones.

Researchers conducted further follow-up surveys in 2017 to track student attendance rates, dropout rates, PLE registration rates, PLE assessment results, and secondary school enrollment rate.

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The PFP program in rural Uganda improved teacher effort and reduced student dropout rates overall. In schools with math books, PFP produced large gains in student attendance and, for better-performing students, improved test scores. Meanwhile, in schools without math books, PFP did not improve attendance, achievement, or attainment among students.

Teacher Effort: In both schools with and without math books, PFP teachers spent more time grading assignments. Teachers in the PFP group spent 16 more minutes per week grading assignments, a 12 percent increase relative to the comparison group. The impacts of PFP on teacher attendance and hours spent preparing lessons were also positive but not statistically significant.

Student Attendance and Attainment: The intervention sought to reduce dropouts in the penultimate year of elementary school, and it succeeded. Students in the PFP intervention group were more likely to still be attending their school a full year after the intervention ended (60 percent likelihood versus 56 percent in the comparison group).

However, this impact is driven by attendance gains in schools with math books. In these schools, the probability that students remained in their current school through the following school year increased by 7.0 percentage points, a 12 percent increase compared to 57 percent probability in comparison schools.

In schools without math books, researchers found no evidence of improved attendance for any group of students.

Student Achievement: In schools without math books, researchers found no evidence of improved achievement among students on topics above or below the current grade level, P6. In schools with math books, PFP had no impact on average math assessment scores among students, but higher performing students, whose math skills were closer to grade level, performed 0.186 standard deviations higher on exam items that resemble those found in books that cover the P6 curriculum.

Researchers offer some potential explanations for these results. First, instructional materials, like books, that match a student's initial math level are complementary with any improvements in teacher performance sparked by the PFP incentive. Therefore, the books may have been less valuable for students who were far below grade level. It is not surprising that the achievement gains associated with the incentive are present on topics covered by books designed to cover the national P6 curriculum, among students who began the year close to grade level, in intervention schools with books.

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