Improving Student Learning through Pay-for-Performance Teacher Contracts in Rwanda

Sector(s): Education, Political Economy and Governance

Fieldwork: Innovations for Poverty Action (IPA)

Sample: 164 schools

Target group: Primary schools Students Teachers

Outcome of interest: Student learning Service provider performance

Intervention type: Incentives Monetary incentives Performance-based pay

AEA RCT registration number: AEARCTR-0002565

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Partner organization(s): Rwanda Education Board, Innovations for Poverty Action (IPA), UK International Development, John Fell Fund, World Bank

Governments around the world face challenges in recruiting, motivating, and retaining skilled teachers. Researchers conducted a randomized evaluation to test the impact of pay for performance contracts on teachers' qualities, effort, and student learning in Rwanda. Pay for performance improved teacher effort, particularly their presence in classroom and their pedagogical effectiveness, and raised student learning outcomes. It did not attract teachers with different motivations or skills compared to those paid in fixed wage contracts.

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Skilled teachers create lasting benefits both for students and society by improving learning outcomes, increasing educational attainment, and boosting future earnings. However, governments worldwide struggle to recruit and retain skilled teachers. Many education systems also find it challenging to keep teachers motivated to provide quality lessons.

One policy approach to address this challenge is pay for performance (P4P), which ties teacher compensation to factors such as teacher presence, pedagogy, or student learning progress. While P4P aims to boost motivation and retain effective teachers, critics of P4P suggest that it may also risk reducing intrinsic motivation and overall teacher effort. Can pay for performance improve teacher effort and student learning, or does it attract the wrong type of people to teaching?

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Rwanda is among the top-performing countries in sub-Saharan Africa in terms of access to education, with net enrollment in primary education reaching 99 percent in 2016 [1]. However, teacher turnover remains a significant challenge, with 20 percent of teachers leaving their jobs annually. Turnover is especially high in schools with low learning levels [2].

Unlike many low- and middle-income countries, Rwanda does not offer a wage premium for public sector teaching jobs, leading many qualified individuals to pursue other opportunities instead. In 2017, only 37 percent of graduates from teacher training

colleges (TTC) were employed as teachers, while 15 percent held salaried, non-teaching jobs. This was not due to a lack of teaching positions, as nearly a quarter of vacancies created by teacher turnover remained unfilled in the following school year. Instead, it was more likely because TTC graduates could earn a wage premium of nearly 30 percent in non-teaching sectors. Given these challenges, recruiting and retaining qualified, skilled, and motivated teachers to improve education quality remains a priority for the Government of Rwanda.



Teacher teaching students in a classroom in Rwanda

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Researchers conducted a randomized evaluation to test the impact of pay for performance (P4P) contracts on teacher characteristics, teacher effort, and student learning.

During the recruitment process of public-school teachers in 2016, potential applicants were randomly assigned to see job advertisements for either fixed wage or P4P contracts for teaching jobs. After recruitment, a second randomization occurred at the school level, determining whether schools would offer fixed wage or P4P contracts. Schools were randomized into one of the two groups.

1. *P4P contracts group (85 schools):* The P4P contract, developed in collaboration with the Rwanda Education Board and Ministry of Education, awarded a bonus of RWF 100,000 (USD 127.02 in 2016) to the top 20 percent of teachers, assessed by a metric that equally weighted student learning outcomes and teacher inputs. The bonus was equal to about fifteen percent of the average salary.
2. *Comparison group (79 schools):* The fixed wage contract paid every teacher an extra RWF 20,000 (USD 25.4 in 2016) in addition to their base salary.

Due to the two stages of randomization, some teachers ended up with a contract type different from the one they initially saw in the job advertisement. The table below illustrates the four possible scenarios teachers could experience.

		Advertised contracts	
		Fixed Wage	P4P
Experienced Contracts	Fixed Wage	Group A (comparison)	Group B (comparison)
	P4P	Group C (P4P contracts)	Group D (P4P contracts)

Researchers collected various types of data to examine the causal link between P4P contracts and outcomes on teacher effort and student learning. These included tests to measure student learning and unannounced classroom observations and rubrics that measured several objective inputs—communication of lesson objectives, delivery of materials, use of tests, and student engagement—to measure pedagogical performance. Broadly, teacher effort was assessed based on their attendance, lesson planning, and pedagogical performance, while student assessments were used to evaluate learning outcomes and determine performance-based rewards for teachers.

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Teachers who worked under P4P contracts had higher classroom presence, more effective pedagogy, and raised student learning outcomes. However, pay-for-performance contracts did not attract teachers with different motivations or skills compared to those paid in fixed wage contracts.

Teacher characteristics: There was no meaningful difference in the quality of teachers who applied to P4P contracts compared to those who applied to fixed wage contracts, as measured by their teacher training college exam scores. However, teachers who saw and were hired under P4P contracts were slightly less intrinsically motivated than teachers who saw and were hired under fixed contracts.

Teacher effort: Teacher presence was measured as the fraction of days a teacher was present during spot checks. P4P teachers were present 97 percent of the time, which was 8 percentage points (or 9 percent) higher than fixed wage teachers, who were present 89 percent of the time. P4P teachers also scored 0.10 points (5 percent) higher on a four point pedagogical performance rubric compared to fixed wage teachers who scored 1.98.

Student learning: Teachers working under P4P contracts induced better student performance than teachers working under fixed wage contracts. On average, P4P teachers improved student learning by an additional 0.16 standard deviations in their second year.

Retention of teachers: P4P contracts and fixed wage contracts did not lead to a detectable impact on retention rates of teachers.

Drawing on the results from the study and with support from the Fund for Innovation Development, and USAID Development Innovation Ventures funding, the "Supporting Teacher Achievement in Rwandan Schools" (STARS) program is working to expand P4P contracts to enhance teacher effort and improve student outcomes in public primary schools. The program aims to scale STARS to one-third of Rwanda's primary school districts, reaching more than 370,000 students between 2022 and 2025.

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1. "School Enrollment, Primary (% Net) - Rwanda." World Bank Open Data. Accessed April 8, 2025. https://data.worldbank.org/indicator/SE.PRM.NENR?locations=RW.

2. Zeitlin, Andrew. 2020. "Teacher Turnover in Rwanda." Journal of African Economies, Volume 30, Issue 1: 81–102. https://doi.org/10.1093/jae/ejaa013.