



FID Series

“Key impact results”

Improving student learning outcomes through performance-based compensation for teachers

How can pay-for-performance contracts incentivize teachers to improve student learning outcomes while promoting quality teaching practices? This is the challenge addressed by the "[Supporting Teacher Achievement in Rwandan Schools](#)" (STARS) program, designed by the Rwandan Ministry of Education, alongside its partners.

In Rwanda, teacher compensation is tied to annual performance targets based on a system known as Imihigo. An initial impact evaluation conducted by Innovation for Poverty Action and the Rwanda Education Board (Leaver et al., 2021) has demonstrated that contracts linking teacher performance to more objective criteria may significantly improve learning outcomes. These contracts are structured around a common framework called the "5Ps": Presence of teachers, Preparation of lessons, Pedagogy, Participation in CAMIS (the national database for reporting student assessment grades) and Pupil learning gains. The STARS program tested and evaluated different versions of this contract including different features, in order to identify the most effective model for scale-up. The project also aims to increase CAMIS reporting, thus improving the quality of data used to assess learning outcomes and manage performance-based contracts.

Research team

Clare Leaver

Owen Ozier

Pieter Serneels

Andrew Zeitlin



Key impact results

Results from the third year of the pilot project show that the pay-for-performance contracts improved teachers' practices in several areas, particularly in terms of their lesson preparation and pedagogical approach. CAMS reporting has gradually increased, although these results vary depending on the contract arrangements in place. Under certain models, improvements in teaching practices are associated with better learning outcomes for students. The most promising results on both teaching practices and student learning outcomes were achieved using a contract model based on the "5Ps" version that includes a performance bonus for headteachers, linked to the results of teachers in their school (version B5).

+13 percentage
points

Average increase in available lesson plans during unannounced visits to schools using STARS contracts.

\$0,15 per student

Cost of implementing the scheme.

+0,26 standard
deviations

Improvement in teaching practices with version B5.

+0,11 standard
deviations

Improvement in learning outcomes with version B5.

These results are still preliminary and need to be validated through further research.

For details of the contract variations tested and evaluated, see the table at the end.

Impact study

This research applies an adaptive experimental approach: since 2023, various contract versions have been trialed each year, and their impact

methodology

on teachers' practices and students' learning outcomes assessed. This information was then used to gradually phase out the least effective models while continuing with the most promising measures, either alone or in combination. The aim is to determine which contract model is both effective and suitable for wider scale-up.

A serie of tests (randomized A/B tests) was conducted to compare the different contract versions – from B1 to B7 – each year for three years, across 245 schools, against the "5P" reference model in 50 schools and a control group of 94 schools that did not use the improved pay-for-performance contracts. In the third year, the focus was narrowed to only the most promising contract variations: in particular the ones including the base model (5Ps), the evaluation of teachers by headteachers, re-testing of students via external audits to improve the accuracy of students assessments, and incentives for headteachers to improve their schools' performance.

The impact evaluation addressed three research questions

- 01 Can pay-for-performance contracts improve teaching practices?
- 02 Which contract models are most effective in improving students' learning outcomes?
- 03 Which contract model is most suitable for broader scale-up?

1. Can pay-for-performance contracts improve teaching practices?

The results have shown that pay-for-performance contracts improved teachers' practices in several areas, particularly in terms of lesson preparation and pedagogical approach. At the end of the project's third year, the different contract models led to an increase in available lesson plans, with an estimated improvement of around **11 to 15 percentage points** depending on the specific contract arrangements. Independent observations also found that teachers were better prepared and more organized. However, no significant increase in the presence of teachers was observed, as this rate was already high from the

start.

Contract model B5 achieved the most significant estimated impact on teaching practices (**+0.26 standard deviations**). This version combines the basic model with a performance contract for headteachers, which partially ties their evaluation scores to those of teachers at their school. This finding suggests that a two-pronged approach offering incentives for both teachers and management may help to improve teaching practices.

STARS contracts also appear to encourage reporting in the national CAMIS system, with an estimated positive impact of around **2 to 3 percentage points** depending on which contract model was used in the third year. This increased participation has helped to provide more comprehensive data on student learning outcomes.

2. Which contract models are most effective in improving students' learning outcomes?

Improving students' learning outcomes is a central component of all the pay-for-performance contracts evaluated, with learning gains accounting for 50% of teachers' overall score. Student progress is measured relative to their initial level so that teachers are assessed on how much their pupils improve, regardless of their starting point.

The results have demonstrated that stronger incentives for headteachers can also have a significant impact. According to independent evaluations, version B5 achieved the highest gains out of all the models tested, with an increase of around +0.11 standard deviations.

3. Which contract model is most suitable for broader scale-up?

The key finding from the evaluation is that contract model B5 achieved the most promising results both in terms of teachers' practices and students' learning outcomes. Headteachers could therefore play a crucial role in making basic performance contracts more effective.

B5 adds a single component to the basic model: a financial incentive for headteachers tied to the performance of teachers at their school. This version requires less additional resources than more complex models involving several mechanisms, such as teacher evaluation by headteachers and student re-testing.

Choosing the most appropriate model for scale-up depends not only on its impact, but also on its cost and feasibility. Seeking to strike this balance, Rwandan authorities have selected the B5 model for national roll-out.

Perspectives and scale-up

Initially piloted in primary schools, the B5 contract model will now be rolled-out to 3,492 primary and secondary schools across 30 districts, representing 87,945 teachers and 3.23 million students.

Research will continue alongside this national roll-out to substantiate the findings from four years of trials and to assess whether the impact of these contracts can be sustained on a larger scale.

Find out more

Research

Leaver, C. ; Kubie, O. ; Mfura, L. ; Zeitlin, A.

"Enough already? Implementing evidence-based policy in the Rwandan education sector". Case study, 2025.

Leaver, C. ; Ozier, O. ; Serneels, P. ; Zeitlin, A.

"Recruitment, Effort, and Retention Effects of Performance Contracts for Civil Servants: Experimental Evidence from Rwandan Primary Schools".
American Economic Review, 2021.

Muralidharan, Karthik ; Sundararaman, Venkatesh.

"Teacher Performance Pay: Experimental Evidence from India"
Journal of Political Economy. 2011.

Main contract versions tested and evaluated

Version	Measures added	Main results and lessons learned	Cost/Scale-up potential
A – Basic model	Teachers' practices + students' learning outcomes	Improves, in particular, lesson preparation and pedagogical approach	Reference model
B1 – Assessment by headteacher	Headteachers assess teacher performance	0.15 standard-deviation improvement in teaching practices	Continued use to be tested in combination with other mechanisms
B4 – Re-testing of students	Independent reassessment of a sample of students to improve the accuracy of learning outcome data used for performance contracts	0.07 standard-deviation increase in learning outcomes, demonstrating a positive but not significant impact. This version also improves teaching practices.	More expensive; measure scaled back in year 3
B5 – Headteacher performance incentives	Headteachers receive a performance bonus tied to the scores of teachers at their school	0.26 standard-deviation improvement in teaching practices; 0.12 standard-deviation improvement in learning outcomes, demonstrating a significant impact.	No additional cost; best compromise for scale-up
B7 – B1 + B4 + B5	Combines the three mechanisms	0.06 standard-deviation improvement in learning outcomes, but no significant impact. No additional gains were identified with the combined approach compared with the other versions used alone	More complex; worth weighing up the additional gains