

# ERSA Research Brief

March 2019

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## Motivating teachers in rural Zambia using a monetary incentive

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Like many developing countries, the achievement gap between rural and urban areas in Zambia remains substantial. For example, the share of students scoring well on the Primary School Leaving Examinations (the Grade 7 Examinations) in rural areas is about half what it is in urban areas, according to data from the Examinations Council of Zambia (ECZ). The reasons for the spatial differences in outcomes are legion: pupils in urban areas tend to come from wealthier families with highly educated parents, urban areas tend to have much better infrastructure than rural areas and so on.

In recognition of this, the Government of Zambia has instituted a series of interventions aimed at making rural areas more attractive for teachers. For example, there has been a drive to build teachers houses in rural areas and to encourage banks, mobile phone operators to extend coverage to rural areas.

One such intervention, which is the focus of this study, is the rural hardship allowance. As the name suggests, the allowance provides a monetary incentive to teachers based in rural schools. The allowance was first introduced in the 1990s but was economically insignificant until 2008. In that year, the government pegged the allowance at 20% of a teacher's base salary.

In 2010, an effort was made to simplify the implementation of the allowance. A simple distance rule was adopted over the previous more complex criterion. Under the new rule, schools qualify to receive the allowance if their distance from the nearest district center is greater than some specified threshold. The specific cutoff depends on the degree of "ruralness" of a particular district.

The rule generates "quasi-experiments" within a neighbourhood of the cutoff allowing us to evaluate its impact on, for example, the retention rate of teachers or the performance of students on exams. Concretely, schools within, say, a 5 to 10 kilometer radius of the eligibility cutoff are likely to be similar in many respects with exception that some receive the allowance while others do not. Any differences in relevant outcomes between schools receiving the allowance and those not receiving the allowance can be attributed to the allowance itself.

Our new paper conducts such an evaluation using a [regression discontinuity design](#). We use data on school and teacher characteristics from the Ministry of Education's Annual School Census which we combine with data on school-level performance on the Grade 7 Examinations. We augment the last two datasets with information from the Government's payroll department on whether the school actually gets the allowance as per the rule.

We find some improvement in teacher numbers and teacher tenures in schools on the qualifying side of the cutoff. Moreover, the size of these effects is non-negligible, suggesting that the allowance increases the amount of teachers by 10% and succeeds in keeping teachers at their schools by around half a year. At the same time, we find no significant differences in teacher characteristics between the two sides of the cutoff. It appears that whereas the allowance helps in keeping teachers in rural areas, this does not translate into better student performance. It is worth emphasizing, however, that data limitations render

our estimates imprecise, and therefore our conclusions are tentative and should be interpreted with caution.

We perform two types of analyses to suggest possible avenues to improve the effectiveness of the allowance. First, the teacher's payroll appears not to be updated quickly enough to account for teacher movements. For example, teachers who move from qualifying to non-qualifying schools might still receive the allowance even though they are not supposed to (this is technically known as payroll mismatch). We find that this mismatch does "dilute" the effect of the allowance, although this effect is not very large. Still, addressing this mismatch could improve the effectiveness of the allowance in rural areas.

Second, there is the possibility that the allowance is more effective when other "goods" are present. Some suggestive evidence for this was gleaned from a small telephone survey we conducted with some 100 head teachers in qualifying and non-qualifying schools around the cutoff. We found that factors like distance to amenities (banks, etc.) and delays in salary payments also mattered for teacher retention. This suggests that policy interventions such as improving transportation and road infrastructure, and the timely delivery of salaries may be promising for keeping teachers in rural areas. Moreover, there are likely to be complementarities between these factors and monetary allowances: Monetary allowances matter more when one is sure to get them on time and when amenities to spend them in are reachable. Investing in timely delivery of salaries, and in road infrastructure and transportation could bring benefits, not only in themselves, but also in making the rural hardship allowance more effective.