Policy brief
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Evaluation of the rural hardship allowance in Zambia

In brief

- There is a large disparity in educational outcomes between children in Zambia. The attainment of those living in rural areas tends to be half of those living in urban areas at primary level.
- It is thought that one cause of this disparity relates to the low motivation of teachers to work in rural areas. The Zambian government has tried to address this by implementing a rural hardship allowance which has taken several forms since the 1990s.
- This brief evaluates the efficacy of the rural hardship allowance on attracting and retaining teachers in rural areas and whether this impacts student outcomes.
- The researchers find that that the allowance increases the amount of teachers in rural schools by 10% and succeeds in keeping teachers at their schools by around half a year, but has no effect on student performance.
- It is also found that administration issues mean that the Zambian government's database is not an accurate reflection of where teachers work, meaning that some teachers may not be receiving the correct allowance.
- The researchers recommend that policymakers ensure the teacher database is kept up-to-date and that there is an increase focus of non-monetary incentives to attract teachers to rural areas.

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Problem: Rural-urban education disparities in Zambia

There are large disparities in educational outcomes between urban and rural areas in Zambia. For example, the share of pupils in rural schools scoring in the top tier on the Primary School Leaving Examinations (Division One) has been consistently half of those in urban areas. These types of differences can have dramatic implications for inequality in human capital accumulation, labour market outcomes and, ultimately, the wellbeing of Zambians.

Part of the problem is that teachers seem to be less motivated to stay and teach in rural areas. This results in comparatively large rates of attrition of teachers from rural areas. For example, data from the Ministry of Education's Annual School Census shows that in any given year, 7% of the teaching staff in rural areas leave versus 3% in urban areas. The same data source shows that teachers posted to rural areas serve shorter tenures there (10 years) versus teachers in urban areas (12 years).

Addressing the problem of teacher motivation to stay in rural areas is unlikely on its own to completely close the achievement gap between urban and rural students. Students in urban areas are advantaged in having a better socioeconomic background, being wealthier, having parents with more formal education, etc. However, motivating teachers to stay in rural areas is a realistic policy objective that can help reduce the rural-urban inequity.

In order to address this problem, the government implemented, among other interventions, a rural/remote hardship allowance. The scheme first emerged in the 1990s but was insignificant in quantity. In 2008, the allowance became substantial. Two allowances were established — a rural allowance corresponding to 20% of the base salary and a remote allowance corresponding to 25% of the base salary (or an additional 5% over and above the rural hardship allowance).

We have conducted research to evaluate the impact of the rural hardship allowance on teacher and student outcomes. We sought to understand whether the allowance succeeds in keeping teachers in rural areas. If so, we were also interested in understanding which type of teachers the allowance attracts (are they younger/ older, with more or less years of education?).

The rural and remote hardship allowances

The virtues and limitations of our evaluation come from the specific way in which the rural hardship allowance is implemented. In 2010, it was decided that the criteria for allocating the allowance to teachers would be the distance to the nearest district centre. Schools beyond a pre-specified cut-off would qualify for the rural hardship allowance. Those beyond a

more distant cut-off would qualify for the remote allowance. Districts were divided into four categories according to their degree of remoteness and the cut-off was set differently for each of these categories. For instance, for the rural allowance, the most remote districts had a cut-off of zero (so that all schools qualified to obtain the allowance), moderately remote districts had a cut-off of between 20 and 25 km and the most urban districts had a cut-off of 30 km.

The rural hardship allowance appears not be implemented strictly in accordance to this distance criteria, for two reasons. First, schools are allowed to contest their allocation. If, for instance, the school is separated from the nearest district centre by natural barriers (mountains, rivers, etc…), teachers at the school may be allowed to get the allowance even if the school does not qualify for the allowance on a strict reading of the distance criteria. Second, there is a mismatch between the schools where teachers are paid and where they actually teach. This has been pointed out by the Auditor General in a series of reports. The government's payroll department pays salaries (and allowances) on the basis of their database, but it appears that the database is not kept up-to-date. This implies that when teachers move to a new school they may still appear in the payroll as being part of the former school. This, naturally, also applies to the rural hardship allowance and implies that eligible schools may have some teachers that do not receive the allowance and vice versa.

How we evaluated the rural hardship allowance

An evaluation of the rural hardship allowance requires a comparison between the schools that get the allowance with schools that do not. However, if we simply do this, our comparison would be driven by all the ways in which urban and rural schools are different. This includes the allowance, but also for example the differences in the student body, as mentioned above. Rural schools receive the allowance, but also have students from poorer socioeconomic backgrounds that generally do worse at school. If we just compare rural schools to urban schools, it would appear as if the allowance were detrimental to learning.

The evaluation the allowance therefore needs to compare groups of schools that are a priori similar, except that one group gets the allowance and the other does not. Only then we can conclude that the differences we observe between these schools are due to the allowance.

The eligibility rule for the rural hardship allowance presents a unique opportunity to perform such a comparison. In particular, we compare schools on either side of the eligibility cut-off within a small radius (5 to 10 km) of that cut-off. Focusing on schools in a small radius of the cut-off but on either side of that cut-off implies that schools are relatively similar with the only substantial difference being that some get the allowance and others do not get it.

We use data from the aforementioned Annual School Census from 2004 to 2015. We focus on districts that have schools at both sides of the cut-off, so we drop very rural districts as well as districts on the relatively urbanised Copperbelt Province. The data from before 2010 serves to check that, indeed, schools at either side of the eligibility cut-off are similar. We compute distances to district thresholds ourselves using school and district centre GPS coordinates. We merge this data with information on whether a school actually gets the allowance. The latter data is obtained from the Payroll Management Establishment Control (PMEC) of the Government of Zambia.

Results of the evaluation

We first check if, as per the rule, schools on the qualifying side of the threshold are more likely to obtain the allowance than schools on the non-qualifying side. We find that 30% of schools close to the cut-off but on the non-qualifying side get the allowance whereas 80% of schools on the qualifying side get the allowance. We also find that the allowance seems to be implemented more in accordance to the distance rule in some provinces than in others.

Comparing schools at either side of the threshold, we find weak evidence that the allowance is successful in keeping teachers in rural areas. Specifically, we find some improvement in teacher numbers and teacher tenures in schools at the far side of the cut-off. For provinces where the rule is followed more stringently, we also find lower rates of out-of-school teacher transfers when compared to schools on the non-qualifying side.

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Our estimates suggest that the allowance increases the amount of teachers by 10% and succeeds in keeping teachers at their schools by around half a year. This result is similar to the one found in Uruguay when evaluating a similar policy.

At the same time, we find no significant differences in teacher characteristics between the two sides of the cut-off. It appears that whereas the allowance helps in keeping teachers in rural areas, this does not translate into better student performance.

It is necessary to emphasise that data limitations make our estimates fairly imprecise, and therefore the results in this brief should be taken cautiously at this stage. More research is needed to deliver a definitive conclusion regarding the role of the hardship allowance in Zambia.

Discussion and policy implications

Our results suggest that the rural hardship allowance has some success in keeping teachers in rural areas but does not lead to better student performance. We have performed two additional analyses that point to possibilities of improving the effectiveness of the allowance.

First, we have considered the consequences of the aforementioned teacher-payroll mismatch which is likely to dilute the impact of the rural hardship allowance if teachers in non-eligible (urban) schools receive the allowance.

To gauge the extent of this problem, we conducted a survey of around 100 schools on either side of the eligibility cut-off. We found that the problem is quite severe. Around 40% of teachers were reported to be paid from a school other than where they taught. At the same time, we found that the impact on the actual receipt of the allowance was limited. Teachers on the qualifying side of the cut-off are still substantially more likely to obtain the allowance than teachers on the non-qualifying side. This suggests that addressing payroll mismatch can improve the effectiveness of the rural hardship allowance, although such improvement is not likely to be dramatic.

A second way we believe the rural hardship allowance could be made more effective is by focusing on non-monetary incentives. Monetary inducements such as the allowance are more likely to be more effective when other "goods or services" are present. In our survey of schools around the cut-off, we collected information on other factors potentially relevant for teacher mobility decisions. Consistent with our main results, we found that receipt of the allowance was linked to slightly fewer teachers leaving the school. However, we also found that other factors, such as distance to amenities and delays in salary payments, appeared much more strongly related to teacher departures. 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.