Policy brief
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INNOVATIONS FOR POVERTY ACTION

International Growth Centre

Where are the teachers?

Staffing inequities across Zambian public schools

In brief

- This brief analyses the distribution of teachers across public schools in Zambia and looks at the administrative challenges linked to teacher allocation.
- The researcher finds large staffing inequities across public schools. While 10% of public primary school pupils attend schools with pupil-teacher ratios (PTRs) below 30 pupils per teacher, 16% of pupils – approximately 475,000 children – go to schools with PTRs above 80.
- Imbalances are largely concentrated within rather than across districts and are linked to administrative challenges in teacher workforce management, meaning teachers are not being effectively deployed where they might be needed.
- Districts with larger differences in PTRs between schools show a lower pupil performance at the 2017 national grade 7 exams compared to districts with smaller differences. This suggests that PTR dispersion is not only worrisome from an equity point of view, but it may also contribute to lower overall educational outcomes.
- The researcher provides six policy recommendations for achieving a greater balance of staffing across public schools.

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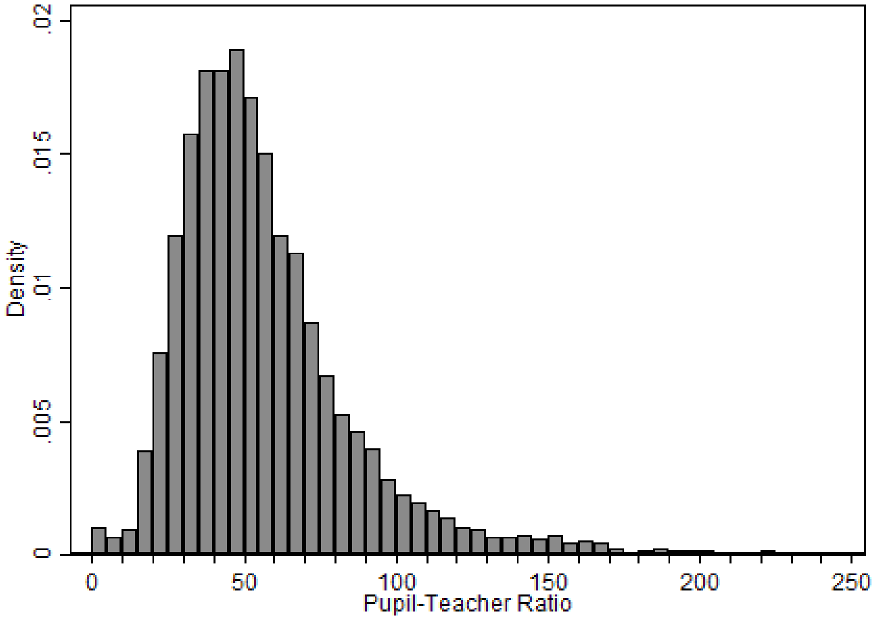
Overview

This study documents the large staffing inequities across Zambian public schools and investigates the causes for these imbalances. It focuses on the primary education sector where there are no subject-specific teachers, and thus the ratio of pupils to teachers is a good measure of school staffing. As Figure 1 shows, pupil-teacher ratios (PTRs) vary widely across public primary schools in Zambia. The national aggregate PTR[1] is 44.2 pupils per teacher. But while 10% of public primary school pupils attend schools with PTRs below 30, 16% of pupils – approximately 475,000 children – go to schools with PTRs above 80.

Figure 1: Distribution of PTRs across public primary schools in Zambia[2]



The variation in PTRs across schools is largely local. We find that PTR variation within districts (30.5) is far larger than PTR variation across districts (12.1)[3]. This implies that the inequalities in PTRs are not principally due to understaffing in some districts and overstaffing in others, but mainly from differences between schools within the same district. At the same time, districts with larger cross-school PTR variation experienced lower pupil performance in national grade 7 exams in 2017 – even after controlling for differences in population, economic development, and

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[1] The national aggregate PTR is defined as the ratio of the total number of pupils in public primary schools over the total number of teachers in these schools.

[2] Figure based on the universe of public primary schools (6174) recorded to EMIS 2017.

[3] Within-district variation describes how different the relative staffing levels of schools in the same district are from each other. Cross-district variation describes how different the average relative staffing levels of each district are from each other.

aggregate PTRs. A decrease in the PTR standard deviation from 31.1 to 16.8[4] is associated with a 3.4 percentage point increase in the share of pupils achieving a score of division 3 or better in grade 7 exams. This suggests that PTR dispersion is not only worrisome from an equity point of view, but that it also could also negatively impact academic outcomes. While these results do not prove that PTR variation causally affects educational outcomes, they call for further investigation of the causes and consequences of the observed cross-school teacher distribution in Zambia. This study traces the disparities in staffing levels back to a set of interlinked administrative issues which are discussed below. These include:

1. Lack of enforcement of the Ministry's teacher allocation rule.
2. Weak deployment and transfer policies.
3. Payroll mismatch.
4. Weaknesses in the budgeting process for teacher positions.

Administrative challenges: Deployment, transfers, payroll mismatch, and budgeting

According to the Ministry of General Education's 2015 Standards and Evaluations Guidelines, no school should have a PTR greater than 40[5]. In order to satisfy this rule, approximately 12,500 new primary school teachers would have to be hired in addition to the existing stock of teachers. Therefore, it is understandable that 73% of public primary schools have PTRs greater than the required maximum. At the same time, however, 21% of schools have more teachers than the minimum number required to meet this rule. So, many of these schools could have teachers transferred to schools with fewer teachers than necessary and still have a PTR in line with the government directive, thereby increasing the number of schools meeting the guideline.

> *"The fact that deployment and transfers are not responsive to current staffing needs partially explains the simultaneous existence of overstaffed and understaffed schools."*

The fact that deployment and transfers are not responsive to current staffing needs partially explains the simultaneous existence of overstaffed and understaffed schools. In fact, many schools that already had more teachers than necessary to achieve the PTR rule received new teachers in the 2014 deployment, rather than deploying those teachers to understaffed schools[6]. In addition, a large share of transfers (approximately 40% between 2010 and 2017) moved teachers into schools with lower PTRs than those they came from.

Payroll mismatch is another major administrative obstacle to teacher allocation. It occurs when staff do not work at the organisational unit they are listed at in the government payroll system. Studies by the Office

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[4] These represent the 75th and the 25th percentile of the cross-district distribution of the PTR standard deviation.

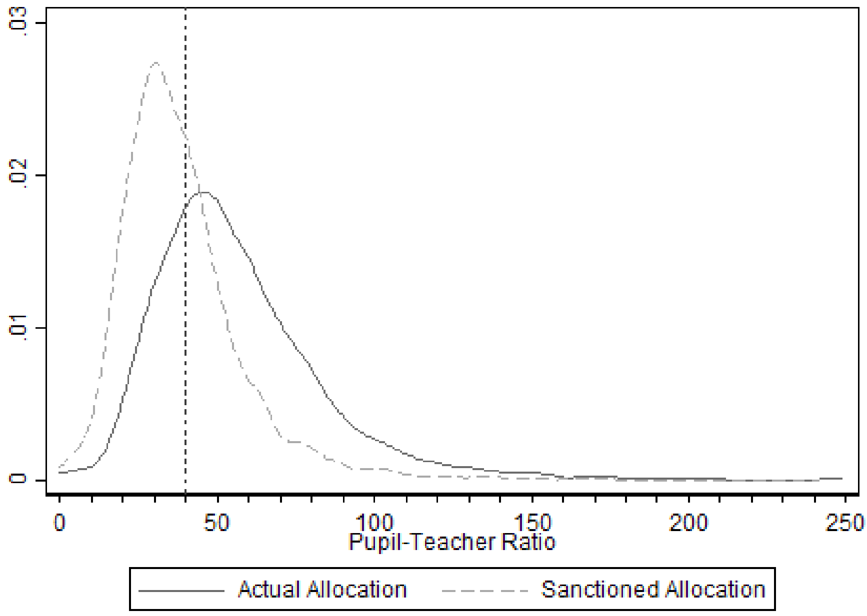
[5] The 2011-2015 National Implementation Framework includes a similar goal of ensuring maximum class sizes of 40 students for all public primary schools.

[6] 2014 is the most recent year for which data was available to conduct this part of the analysis.

of the Auditor General[7], Innovations for Poverty Action, and the Ministry of General Education in collaboration with ZESSTA have attempted to quantify the magnitude of mismatch and found that at least 40% of Zambian teachers do not work at the location where they are paid. Payroll mismatch is a major problem with regards to the allocation of teachers because a school may be understaffed while its payroll does not show any vacancies, thus impeding adequate deployment of teachers to the school.

However, eliminating payroll mismatch would not eliminate the variation in staffing levels across schools. In fact, even if the payroll perfectly reflected schools' actual staffing levels, PTRs would still vary substantially across schools due to inequalities in the number of sanctioned teaching positions across schools. Figure 2 illustrates this by comparing the distribution of actual PTRs across public primary schools to the distribution of pupil-teacher paypoint ratios (henceforth sanctioned PTRs) across the same schools[8]. The figure shows that there is nearly as much variation in sanctioned PTRs as in actual PTRS, and 40% of schools have sanctioned PTRs above 40.

Figure 2: Actual and sanctioned distribution of PTRs across public primary schools in 2014



One of the main factors behind the dispersion in sanctioned PTRs appears to be that establishment registers are updated infrequently. Once a school is opened, its establishment is rarely adjusted to reflect changes in enrollment. Additionally, newly opened schools can take a long time to

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[7] Auditor General, 2014. Report of the Auditor General on the deployment of teachers in Basic Schools.

[8] Actual PTRs are derived from EMIS 2014 and teacher paypoints are computed based on 2014 payroll data.

receive an establishment. For example, fieldwork in Chavuma found that 38% of schools did not have an establishment.

Towards a more equal distribution of teachers

If the existing stock of public primary school teachers was allocated across schools using a maximum pupil-teacher ratio rule informed by current pupil counts and this rule was strictly enforced, teachers would be distributed much more equally. Given the current stock of teachers, the smallest maximum PTR that could be achieved nationwide would be 48[9]. While this is greater than the desired maximum PTR of 40, it would still represent a vast improvement for many schools over their current situation. No public primary school pupil would have to attend a school with a PTR above 48 and the variation in PTRs across schools would be minimal.

Policy recommendations

This section summarises policy recommendations based on the findings of this study. A concrete implementation proposal which addresses the outlined challenges through a structured plan of action is developed in the full project report. As the documented issues are tightly interlinked, addressing them jointly seems key.

- **Eliminate payroll mismatch**
  Payroll mismatch poses a major obstacle to the deployment of teachers to schools based on need. Paypoints occupied by teachers working at other schools or not working at all do not allow for the allocation of additional teachers to those schools.

- **Update establishment registers to reflect needs on the ground**
  Because establishment registers are so rarely updated, they frequently do not reflect the actual staffing needs of a school. Establishing a system to regularly update establishments is essential. This includes the timely creation of establishment registers for newly opened schools.

- **Use an achievable maximum PTR rule to guide teacher allocation**
  The rule that no school should have a PTR above 40 is infeasible given the current stock of teachers. Even with increased hiring, the government is unlikely to meet this goal in the near future. Using an achievable maximum PTR rule to guide teacher allocation would allow for achieving a more equitable teacher distribution.

- **Deploy new teachers exclusively to schools in need of teachers**
  Because there is no reliable information on actual staffing levels and needs in the payroll system, deployments based on payroll are largely ineffective at providing understaffed schools with more teachers. Only

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[9] Based on EMIS 2017. It does not consider teachers on payroll that do not appear in EMIS.

when payroll mismatch has been eliminated and establishment registers have been updated based on an achievable maximum PTR rule, payroll vacancies will be truly reflective of teacher needs. At that stage, it will be crucial to prioritise schools for deployment by need.

- **Re-allocate teachers across schools to balance PTRs where possible**
  While it is likely easier to place new teachers in areas with high need than it is to move existing teachers from their current working locations, there are schools with significantly more teachers than necessary. Staff should be moved from these schools to others with greater needs.

- **Enforce transfer policies**
  Transfers that do not comply with the official transfer policies and are not reported in payroll increase payroll mismatch and frequently directly contribute to unbalanced staffing levels. Therefore, it is important to ensure that transfers follow the official policies and are always reported in payroll. This way any compliant transfers since the last recruitment can be taken into account at the next deployment and resulting imbalances can be addressed.

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