The Allocation of Teachers across Public Schools in Zambia



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This Study

- Describe the distribution of teachers across public primary schools in Zambia
- Examine the underlying administrative challenges and geographic factors linked to the allocation of teachers
- Propose a concrete plan of action to overcome the interlinked administrative problems and establish a more balanced distribution of teachers

Staffing Inequities across Public Primary Schools



- National aggregate PTR: 44.2
- Bottom 10% of schools have PTRs below 29.9
- Top 10% have PTRs above 101
- Approximately 475,000 pupils attend schools with a PTR above 80





Differences in Imbalances between Districts

Implications: Inequality of Opportunity

- Schools with high PTRs tend to be less well equipped along other dimensions as well (e.g. electricity access, water supply)
- Children who attend these schools don't have the same opportunities as children in schools with low PTRs
- Some highly talented children at schools with high PTRs may never finish primary school

Implications: Inefficient Allocation of Teachers

- Would a more equal distribution of teachers increase the number of children completing primary school?
- Available evidence suggests so:
 - Districts with smaller differences in PTRs between schools tend to perform better at grade 7 exams
 - This is true even when taking differences in population, economic development and the total number of teachers per pupil into account

Causes

- 1. Administrative challenges
 - Lack of enforcement of the Ministry's teacher allocation rule
 - Weak deployment and transfer policies
 - Payroll mismatch
 - Weaknesses in the budgeting process for teacher positions
- 2. Spatial variation in living and working conditions

Lack of Enforcement of Allocation Guideline

- The 2015 MoE Standards and Evaluations Guidelines established a rule that no primary school should have a PTR greater than 40
- It is not possible to achieve this guideline given current staffing levels:
 - Approximately 12,500 teachers would need to be hired to achieve this rule at all schools
- 73% of public primary schools lack teachers to achieve a PTR of 40
- But at the same time, 21% of schools have more teachers than required to achieve a PTR of 40

Deployment

- Deployment is not systematically linked to need
- Many schools in need of teachers do not receive additional teachers
- At the same time, other schools that already have sufficient staff are assigned even more teachers (grey-shaded)



Transfers

- Teacher transfers from understaffed to overstaffed schools contribute to staffing imbalances
- Approximately 40% of transfers between 2010 and 2017 moved a teacher to a school with a lower PTR than the school they originally worked at
- Why do so many transfers move teachers from understaffed schools to well-staffed schools?

Payroll Mismatch

- Payroll mismatch occurs when staff does not work at the facility they are listed at in the government payroll system
- It inhibits the government's ability to deploy teachers according to school needs because an understaffed school may not receive teachers in deployment if it doesn't have vacancies in the payroll system
- Several independent studies on payroll mismatch provide a range of estimates for its magnitude and indicate that at least 40% of teachers do not work at the school where they are paid

Inequalities in Sanctioned Positions



- Even in the absence of payroll mismatch there would still be significant dispersion in PTRs due to the allocation of sanctioned positions
- Based on the number of sanctioned teaching positions, 40% of schools have PTRs greater than 40

Outdated and Missing Establishment Registers

- School establishments are rarely updated, and updates don't correspond to changes in enrolment:
 - Between 2012 and 2016, only 10% of schools had any update to their establishments
 - 90% of schools with an increase in enrollment did not see an increase in establishment registers
 - At the same time, 47% of schools that had their establishments increased in this period saw decreases in enrolment
- A large number of schools operate without establishments
 - MoE fieldwork in Chavuma district found that 38% of all schools there did not have establishments

Simulation of Needs-Based Allocation

- Imagine an allocation rule along the lines of the current MoE guidelines of the following type: No school should have a PTR that exceeds x.
- Compute the lowest achievable PTR threshold (x) given the current stock of teachers and pupils.
 - This amounts to 48.
- Simulate the PTR distribution under the implementation of this rule.

Needs-Based Distribution of Teachers



Rural-Urban Differences



- Rural schools have on average 4 vacancies
- Urban schools are on average overstaffed by 4 teachers
- However, these averages mask large differences in PTRs between schools within each category

Conclusion

- There are large staffing imbalances across public schools in Zambia
- These raise both equity and efficiency concerns
- The observed imbalances can be traced back to
 - Administrative challenges in teacher workforce management
 - Spatial differences in living and working conditions
- How can a more equitable distribution of teachers be achieved?
 - 1. Overcome administrative challenges
 - 2. Revise incentive schemes to attract teachers to rural schools

Roadmap Towards a More Equal Distribution

- Administrative challenges in budgeting, deployment, payroll management and transfers are interlinked
- Therefore, they can be most effectively addressed jointly
- We propose a structured plan of action to do so and simulate the implementation of this plan for Chavuma district

STEP 1 Collect Data on Actual Locations and Paypoints

- Data on teacher paypoints and working locations is essential to achieving a more equitable distribution
- Two complementary approaches:
 - 1. Staff return collection
 - Data collection initiated in cooperation with MoE HR and ZESSTA
 - 2. Integration of EMIS and payroll
 - Allows for comparison of working location and paypoint of each teacher
- Both approaches could also help identify ghost teachers
- In Chavuma, staff return data collection has been completed and this data will be used to simulate the following steps

STEP 2 Establish an Achievable PTR Rule

- Compute the smallest achievable maximum PTR using the collected data on the number of pupils and teachers at each school
- In Chavuma, PTRs currently vary between 14 and 70. The smallest achievable maximum PTR amounts to 42

STEP 3 Update Establishment Registers

- Update school establishments according to the previously defined maximum PTR rule
- This does not require an increase in the total number of paypoints in the district
- Paypoints will be taken from schools with more budgeted positions than necessary and added to schools with insufficient budgeted positions
- In Chavuma, 29% of schools would gain paypoints (17% of these are currently ungazetted) and 71% would lose paypoints

STEP 4 Align Staffing with Establishment Registers

- If a school has more paypoints than teachers, all teachers currently working at the school can be added to the payroll
 In Chavuma, 63% of schools fall into this category
- If a school has more teachers than paypoints, teachers need to be reallocated to understaffed schools
 - In Chavuma, 14% of teachers would have to be re-allocated

Local Teacher Transfers



- A large-scale teacher reallocation program is not a simple process
- Local transfers could be more easily implemented and still have a large impact on balancing PTRs
- 45% of schools with a teacher deficit are within 10km of a school with a teacher surplus

STEP 5 Maintaining Staffing Balance

- Once teachers have been distributed as equally as possible following the described steps, maintaining balance will be key
- This implies the need to ensure that
 - Deployment is based on need
 - Transfers follow official guidelines

STEP 6

Revise Incentives to Attract Teachers to Rural Schools

- Vacancies in rural areas are likely to remain an issue
- With adminstrative challenges resolved, it will be possible to assess the full scope of this problem and design solutions
 - Review existing incentive schemes
 - Why doesn't the rural hardship allowance scheme affect teacher location and retention (Chelwa et al. 2018)?
 - Develop alternative approaches
 - To what extent could a preference-based allocation system help equalize staffing across schools?

Appendix

Lack of Enforcement of Transfer Guidelines



- Official transfer guidelines are not enforced
- The official bonding period amounts to 4 years (previously 2 years)
- But more than 50% of teachers who were transferred between 2010 and 2017 did so before completing a minimum of 2 years

Number of Teachers in Payroll and EMIS



