WORLD BANK GROUP

JUNE 2023

Addressing Inefficient Distribution of Teachers Between Schools

The Case of Tanzania

With Malawi and the Gambia

1. Introduction

Teachers are the single most important input to learning, and in many countries in Sub-Saharan Africa teachers' emoluments account for the majority of spending on basic education (Bold et al., 2017). However, in many countries in the region teachers are poorly distributed between schools. In particular, schools in remote areas are frequently understaffed compared to those closer to towns and large villages, reflecting a reluctance among teachers to accept postings in areas with significant hardship (Mulkeen, 2010). By contrast, schools in or close to towns and larger villages, where more facilities and amenities are available, often have more teachers than required by government standards, even where the overall supply of teachers nationwide is inadequate. An estimated 28 percent of the variation in staffing between schools in the region cannot be explained by variation in the size of enrollments in schools (Majgaard and Mingat, 2012).

This represents a major source of inefficiency in public education expenditure, with significant shares of finance being spent to maintain teachers in comparatively overstaffed schools where they have limited marginal impact on learning outcomes. The impacts of these inefficiencies may be exacerbated by the need to ensure a suitable range of subject expertise among the teachers at a school.

These inefficiencies are often exacerbated by inefficiencies in the distribution of teachers within a school, between grades. In many regional countries, teachers are disproportionately allocated to upper primary grades, particularly male teachers, leaving lower grades with high pupil-teacher ratios (PTRs) while upper classes have more teachers than required.

Approaches to rationalize the distribution of teachers between schools typically involve two strategies (Asim et al., 2019). First, countries can put in place and implement clearer rules and policies regarding the deployment of newly hired teachers to schools, and on transfers and promotions, to require teachers to be placed in schools with high PTRs. This note presents evidence of Tanzania's use of results-based finance to improve implementation of such rules. Second,

Students in Primary Seven at Zanaki Primary School in Tanzania.
Photo © Sarah Farhat / World Bank.

countries may provide an incentive or support payment to teachers in remote or hardship postings to encourage them to accept and remain in such postings. Box 1 presents examples of two countries that have introduced such incentives, one successfully (The Gambia) and one with more challenges (Malawi).

2. What is the problem?

Like many countries in Sub-Saharan Africa, Tanzania achieved a rapid improvement in access to education following the introduction of free primary education in 2002, but this improvement in access was accompanied by stagnation in learning outcomes. In 2012, this stagnation became a topic of major public concern following a sudden decline in pass rates for the Primary School Leaving Examination (PSLE), the high-stakes examination taken by students in the final grade of primary school governing promotion to secondary school. The share of students passing fell from 57 percent to just 30 percent in 2012, leading to widespread concern about the quality of the education system. Assessments suggested that students in early grades could only read 18 words per minute in Kiswahili, the main local language (Government of Tanzania, 2013).

The crisis reflected inefficiencies in the use of Tanzania's public education expenditure. Tanzania's public expenditure on education was an average 3.7 percent of GDP between 2010–2014, in line with the average for Sub-Saharan Africa (UIS, 2023). However, there were severe inefficiencies in the utilization of this finance, particularly with regard to teachers. With teacher salaries accounting for approximately 65 percent of total public expenditure on basic education, and 95 percent of education expenditure at local and regional level (World Bank, 2019), these inefficiencies had significant implications for overall education finance, and the large share of recurring spending on salaries left limited space for operational costs and other recurrent expenditure.

In particular, teachers were poorly distributed between schools. The national average district PTR of 46 at primary level in 2014 masked wide variations between districts, with the best-staffed, Kilimanjaro, having around 32 students per teacher and the worst-staffed, Singida, 70 (Government of Tanzania, 2014). Only 107 of the country's 162 districts had an overall PTR between 35–50, identified by the government as an acceptable range, with 33 having a higher PTR and 20 a lower PTR. PTRs also varied enormously between schools within a single district. As a result, only 36 percent of schools were in the acceptable PTR range. Another 36 percent of schools were understaffed with PTR above 50, while 27 percent were comparatively overstaffed with PTR below 35.[1] Inequitable deployments within schools deepened the problem, with the result that 40 percent of schools had a PTR of more than 100 in Standard 2 in 2016,[2] and class sizes of more than 200 students were common in Grades 1–2 (United Republic of Tanzania Ministry of Education, Science and Technology, 2020).

The poor distribution of teachers reflected weaknesses in the teacher management system. Although official policy recommended teachers to be deployed equitably between schools, in practice the emphasis of policymaking had been on the overall supply of teachers and the national PTR, with limited attention on distribution-related challenges. Policy-level discussion of teacher distribution tended to emphasize the lack of facilities and amenities in schools in rural areas;[3] while these problems do contribute to the reluctance of teachers to accept postings in such schools, the emphasis on the long-term process of addressing these weaknesses distracted from the medium-term challenge of supporting and compelling teachers to accept such postings in adequate numbers. The structure of education governance in Tanzania increased the challenge, with the Ministry of Education, Science, and Technology (MoEST)[4] setting standards and policies for teacher management, the President's Office – Regional and Local Government (PO-RALG)[5] at national level responsible for the deployment of newly hired teachers to districts, and the districts responsible for the deployment of teachers to schools, making joint decision-making more difficult. The result was that decisions on the deployment of new hires did not prioritize equalizing PTRs, leading to inequitable deployment of new hires by the MoEST to districts and by districts to schools.

---

1 In addition to being poorly distributed, teachers had high degrees of absenteeism from school and from the classroom. In 2014, 14 percent of teachers were found absent from school and, of those in school, 37 percent were not found in the classroom teaching, bringing the overall absence from the classroom to 47 percent, according to the World Bank Service Delivery Indicators (SDI). World Bank. 2014. *Service Delivery Indicators Tanzania*, accessed March 4, 2023. Available at: https://documents1.worldbank.org/curated/en/415111468179674045/pdf/106090-WP-P146421-PUBLIC-Tanzania2014-SDI-EducationTechReport-Final.pdf.

2 Author's calculation using data from:
1. United Republic of Tanzania, Ministry of Education, Science, and Technology. 2018. Education Sector Development Plan (2016/17–2020/21): Tanzania Mainland. Dodoma, Tanzania: United Republic of Tanzania Ministry of Education, Science and Technology; and
2. United Republic of Tanzania, President's Office: Regional and Local Government. *Pre-Primary, Primary, Secondary, Adult and Non-Formal Education Statistics in Brief 2017*. Dodoma, Tanzania: United Republic of Tanzania President's Office: Regional and Local Government.

3 For example, the Education and Training Policy of 2014, intended to provide an overarching framework for education policy, is silent on the issue of the distribution of teachers between schools, but emphasizes the need for investment in teacher housing in rural areas.

4 Then called the Ministry of Education and Vocational Training (MoEVT).

5 Then called the Prime Minister's Office – Regional and Local Government (PMO-RALG).

The large share of understaffed schools had negative impacts on learning: in schools with PTRs above the official target of 40, learning outcomes were typically 15 percent lower in Grade 4 (Asim, Chugunov, and Casley Gera, 2019). In addition, the comparative overstaffing in other districts and schools had negative impacts on the efficiency of education spending, with approximately 13 percent of spending on basic education going to retain teachers in comparatively overstaffed primary schools where they had limited impact on students' learning outcomes. These inefficiencies also posed a challenge for Tanzania's efforts to achieve universal access to education: with a primary net enrollment rate of 81 percent in 2015, expanding the education system to meet demand would be significantly more expensive with an inefficient distribution of the most expensive resource. In order to maximize the impact of Tanzania's limited education finance, achieve free education, and raise learning outcomes, there was an urgent need to improve the distribution of teachers between districts and between schools.

3. What has been done to tackle the problem?

In partnership with development partners, the government of Tanzania adopted a results-based financing approach to improving the distribution of teachers between schools. The reform formed part of Big Results Now! In Education, later known as the Education Program for Results (EPforR), a US$514 million project which operated from 2015–22 with the support of the World Bank, the United Kingdom Foreign, Commonwealth and Development Office (UK FCDO), and the Swedish International Development Corporation Agency (Sida). EPforR provided support for a wide range of government reforms and interventions to improve education outcomes, with financed tied to performance conditions known as disbursement-linked results (DLRs). Two of the project's DLRs rewarded improvements in the distribution of teachers between districts and between schools. Specifically, the DLRs rewarded improvements in the share of districts and schools with PTRs in an acceptable range set at 35–50. The acceptable range was selected as a target—as opposed to simply the number of schools with a PTR below a maximum level—to explicitly encourage the movement of teachers away from comparatively overstaffed districts and schools.

In Tanzania, as in many countries, decisions about the placement of teachers are made at two levels: the national government allocates newly hired teachers to districts, while districts allocate them to schools and manage transfers between schools. Therefore, the DLRs operated at these two levels: the first rewarded the national government for improvements in the share of districts with an average district PTR within the acceptable range of 35–50.[6] A total of US$20 million was tied to improvement in this national-level DLR over the first five years of the program. The second rewarded districts for improvement in the share of schools with PTRs in the acceptable range. A district would receive US$5,000 for each school whose PTR moved down into the acceptable range (for example, from 55 to 45) and US$3,000 for each school whose PTR moved up into the range (for example, from 25 to 35). This dual structure was intended to provide the strongest incentives to districts for improving school PTRs in understaffed schools, while still providing some reward for moving teachers away from overstaffed schools. A total of US$30 million was tied to achievement of the district-level DLR over the first five years of the program.

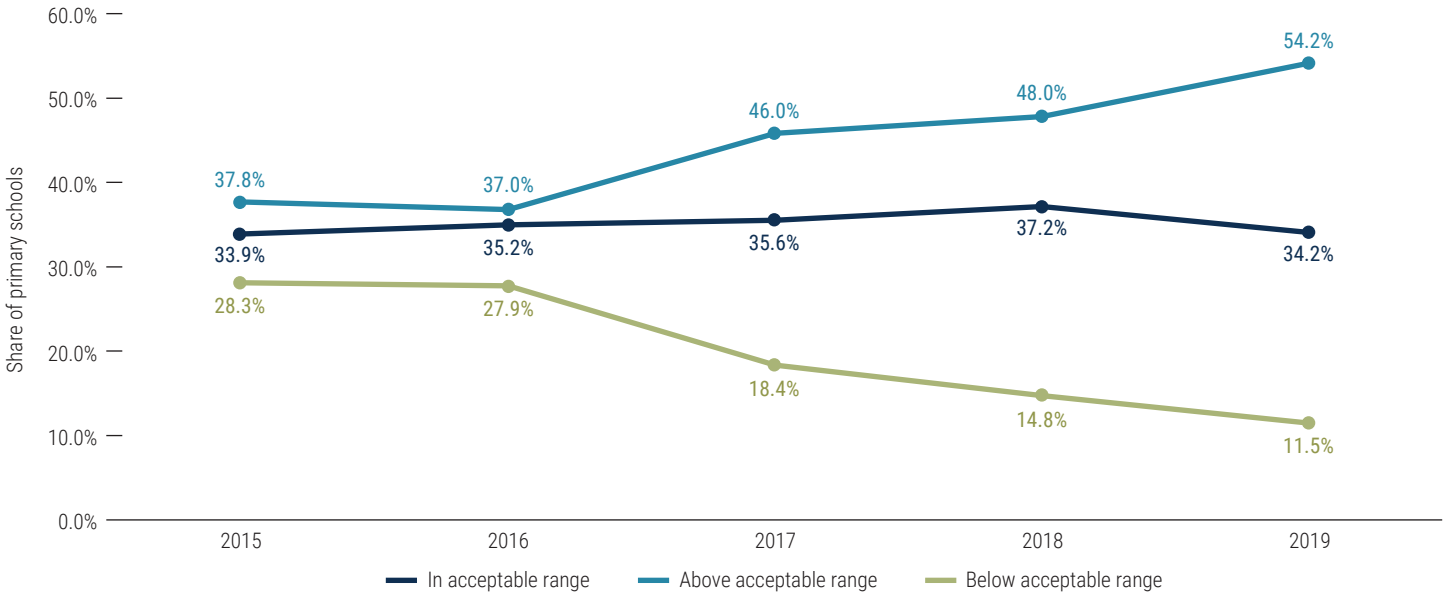
4. What has been the outcome on the efficiency of spending for education?

The national-level DLR was 100 percent achieved in the first two years of the program, reflecting a high degree of awareness within PO-RALG and MoEST of the EPforR and the incentives available. However, at district level, awareness of the EPforR was much lower, and the DLR was just 20 percent achieved in 2014/15 with only 150 schools moving into the acceptable range of PTR. Following a series of regional workshops, which raised the awareness of of the incentive among district-level staff, achievement of the DLR increased to 41 percent in 2015/16 with the number of schools in the acceptable range increasing by 7 percent.

Following the election of a new government in 2015, the new administration introduced a Fee-Free Basic Education Policy (FFBEP) in December 2015. Building on previous reforms which had abolished formal fees for primary education, this policy abolished all formal and informal fees for basic education through lower secondary. The policy led to a large surge in enrollment throughout primary and secondary school. The number of students in primary and secondary school surged from 9.43 million to 11.51 million between 2015 and 2018, driven by large increases in the share of students enrolling in primary school and progressing to lower and upper secondary school. While a huge step toward Tanzania's goal of universal access to school, this surge in enrollment posed challenges for the improvement of PTRs. The national primary PTR rose from 44 in 2016 to 58 in 2019, reflecting a lack of new teachers hired along with the increase in enrollments. Only 65 percent of districts had an acceptable

[6] Increased in 2019 to 35–53.

FIGURE 1 Share of public primary schools with PTR below, within, and above the acceptable range (2015–19)



number of teachers in 2016/17, declining to a disconcerting 45 percent by 2018/19, while the share of schools with very high PTRs—above 75—rose to 27 percent by 2019.

However, even while the national supply of teachers failed to keep up with demand, districts responded to the incentives by better allocating the teachers available. The result was that the share of schools with PTRs in the acceptable range continued to increase, albeit slowly, even as the national teacher shortage worsened.[7] In particular, districts aggressively worked to reduce the number of teachers at comparatively overstaffed schools, with the share of schools with a PTR below the acceptable range declining from 27 percent to 12 percent between 2014–2019 (Figure 1). However, because of the rise in the national PTR, the share of schools with a PTR above the acceptable range continued to increase.

By 2020, districts felt that they were unable to make significant further progress in bringing schools into the acceptable range of PTR, given the constraints on overall supply. The DLR was amended to reward the government for allocating teachers to an agreed list of understaffed schools,[8] regardless of the direct impact on PTR. Overall, 78 percent of the 4,792 teachers deployed in 2020/21 were deployed in accordance with this agreed list. As the supply of teachers improved, the share of districts with an acceptable PTR began to improve again, rising to 57 percent by the time the project closed in 2022.

The reduction in the share of comparatively overstaffed schools enabled by the DLRs had significant implications for the efficiency of education spending. With an estimated US$700 million per year being spent on primary teacher salaries alone, an estimated US$80 million per year was being effectively wasted by maintaining teachers in schools where there was a surplus—an amount reduced by approximately US$45 million by the improvement in teacher distributions engendered by the DLRs. This efficiency gain is equivalent to approximately 2.2 percent of basic education expenditure.[9]

5. What are the lessons learned for other countries?

Successful action on teacher distribution may require action at multiple levels of government. Many Sub-Saharan countries utilize a split-level decision-making system for deployment of new teachers, with teachers allocated by the national government to districts and by districts to schools. For progress to be made, national governments need to ensure an adequate supply of new teachers and equitable

[7] The number of schools with PTR in the acceptable range increased by 14 percent between 2015 and 2018 despite the increase in the national PTR, before falling in 2019 to be 5 percent above the number in 2015.

[8] In addition to PTR, the agreed list included additional factors such as the need for special needs teachers at schools with significant populations of students with special needs.

[9] Cost of public primary salaries as of 2019/2020 according to World Bank Task Team estimations. Exchange rate as of 1 June 2019.

deployment to districts, while districts need to equitably deploy teachers to schools. In such a context, dual-level incentives, with some of the finance provided to districts in response to deployment decisions, are likely to be necessary to ensure that the entire deployment chain is incentivized.

Results-based financing can support improvements in the efficiency of spending on teachers, but are unlikely to be adequate unless backed with support and guidance. Although the finance available to Tanzanian districts for improvements in the share of schools with PTR in an acceptable range were substantial, the response was initially weak owing to low awareness and understanding of the incentive mechanism. Awareness-raising activities and tools to guide officials in making deployments appropriately can help to ensure that incentives have their desired effect. The Tanzanian experience is in line with other experiments with results-based financing at local level, such as in Ceará, Brazil, where results-based finance for improving learning outcomes proved successful when paired with intensive technical assistance for municipalities with difficulties in improving learning (Lautharte et al., 2021).

Moving teachers away from comparatively overstaffed schools is possible, and still more essential, when overall teacher supply is constrained. Although understaffed schools have the more negative impacts on learning, comparatively overstaffed schools contribute directly to understaffing elsewhere and have the most severe implications for the efficiency of overall education expenditure. However, concerted action by district-level officials can achieve improvements in overstaffing even while the overall supply of teachers is constrained. By redeploying teachers away from schools with PTR below 35, Tanzanian districts were able to maintain and slowly increase the share of schools with PTR in an acceptable range even while the national PTR was rapidly increasing, with significant benefits for the overall efficiency of spending.

BOX 1. INCENTIVE SCHEMES FOR TEACHERS IN REMOTE SCHOOLS: LESSONS FROM THE GAMBIA AND MALAWI

Once teachers have been deployed appropriately, there is a need to ensure they remain in the schools in which they have been placed. These schools are typically in remote areas with significant hardship. Rules or customs that give teachers the right to live close to medical facilities or to a spouse can be used to avoid placements in remote areas. In addition, teachers employ a wide range of formal and informal personal connections to exercise influence over placements and resist deployments to remote areas.*

Provision of housing in rural schools is a common approach employed to retain teachers in hardship postings, including in Benin, Cote d'Ivoire, Ghana, and Mauritania, among others. However, it is a high-cost approach, with accommodation for three teachers typically costing more than a classroom (Bashir et al. 2018). Evidence from Ghana and Malawi suggests that offering housing is of limited value as an incentive for teachers to remain in remote postings, typically because it is of poor quality compared to what is available in nearby trading centers (Gad, 2015; Mwenda and Mgomezulu, 2018; Asim et al. 2019). Other non-monetary incentives, such as expedited promotion for those in remote postings, have been used in a number of countries, but there is a lack of reliable evidence of their impact (Evans and Acosta, 2021).

A number of countries have introduced hardship or remoteness allowances to provide incentives to teachers in remote schools to remain in post and ease the hardship of these postings (ibid). However, such schemes require careful calibration and reliable data on remoteness to function effectively.

The Gambia introduced a hardship allowance in 2006 for teachers in remote schools. These were defined as those more than 3km from a main road, in the regions of the country further from the capital, Banjul. The allowances used a variable formula, with additional payments for those in more remote regions; in particularly remote schools more than 9km from the main road; and for female teachers. The value of the allowance was equivalent to 30–40 percent of the typical teacher's salary for the majority of recipients; at a maximum, for a female teacher in a school more than 9km from the main road in the most regions, the allowance was equivalent to 60 percent of a teacher's salary. (In addition to the allowance, the hardship categorizations were also used to influence the value of school grants.)

(*continues on next page*)

BOX 1. INCENTIVE SCHEMES FOR TEACHERS IN REMOTE SCHOOLS: LESSONS FROM THE GAMBIA AND MALAWI (*Continued*)

The allowance had an immediate impact on teachers' preferences. Within one year, 24 percent of the existing teachers in the regions qualifying for the allowance had requested transfers to hardship posts.** Analysis conducted in 2014 confirms that the allowance had long-term impacts on staffing in the qualifying schools—increasing the share of qualified teachers by 10 percentage points and reducing pupil-qualified teacher ratios (PqTRs) by 61 percent. However, the allowance was least effective in the most remote schools, and with female teachers, despite the additional payments in these cases.***

The allowance was initially rolled out in lower basic (primary) schools in 2006 with government finance. Beginning in 2014, the financing of lower basic allowances was supported by the World Bank and Global Partnership for Education (GPE) while allowances were rolled out to upper basic (equivalent to lower secondary) schools through government finance. It is anticipated that the scheme will be fully financed by the government by 2025.****

Malawi introduced its own hardship allowance in 2010. This was intended to provide an allowance of around 30 percent of the average teacher's salary to the 20 percent of teachers working in the most remote schools. However, the policy was weakened from the outset by the lack of a clear, data-driven definition of remoteness. District-level officials were tasked with identifying eligible schools, but while the original proposal envisioned providing the allowance to 15,000 teachers, more than double that number were identified as eligible. The scheme was known as the "rural allowance," leading to a misperception that all schools in rural areas—more than three-quarters of Malawi's schools—were eligible. Teachers in several districts successfully conducted legal or industrial action to gain access to the scheme. The result was that, by 2015, 87 percent of schools were eligible for the allowance, encompassing 80 percent of teachers. With this rapid expansion in the number of eligible teachers, the value of the allowance was reduced to manage costs, and by 2019 the allowance was worth only one-seventh the typical teacher's salary.*

In order to address the scheme's shortcomings, in 2017 Malawi began work to develop a new, more data-driven definition of remoteness, based on the facilities available at a school, the distance to the nearest town or large village, and the facilities available at that location. The revised remoteness definition has been in use since 2022 for school grants, and a new hardship support scheme based on it is expected to be rolled out during 2023 with the support of the World Bank and GPE.*****

Lessons learned. The divergent experiences of The Gambia and Malawi demonstrate that, to be effective, incentive and support schemes for teachers in hardship postings need to be based on reliable and data-driven definitions of remoteness. Appropriately targeted schemes, with a value of at least 30 percent of a teacher's salary, can move the needle on staffing in moderately remote schools, but even at a higher value allowances may struggle to improve conditions in the most remote schools. Effective schemes also entail considerable expense, which may require support from development partners for an extended period of time.

* Asim, S., Chimombo, J., Chugunov, D. and Casley Gera, R. 2019. "Moving teachers to Malawi's remote communities: A data-driven approach to teacher deployment." *International Journal of Educational Development* 65:26–43.
** Mulkeen, A. 2010. *Teachers in Anglophone Africa: Issues in Teacher Supply, Training, and Management.* Washington, DC: World Bank.
*** Pugatch, T. and Schroeder, E. 2014. "Incentives for teacher relocation: Evidence from the Gambian hardship allowance." *Economics of Education Review* 41:120–136.
**** Through the Results for Education Achievement and Development (READ) project, followed from 2018 by the Education Sector Support Program (ESSP).
***** Through the Malawi Education Reform Program (MERP).

Acknowledgments

This study was authored by Ravinder Casley Gera with financial support from the World Bank Education Finance and Reform global team. The authors would like to thank the World Bank team in Tanzania, including Kaboko Nkahiga, Gemma Todd, and Innocent Mulindwa, for their guidance and inputs; and Samer Al-Samarrai and Pedro Cerdan-Infantes for leadership and oversight.

References

Asim, S., Chimombo, J., Chugunov, D. and Casley Gera, R. 2019. "Moving teachers to Malawi's remote communities: A data-driven approach to teacher deployment." *International Journal of Educational Development* 65:26–43.

Asim, S., Chugunov, D. and Casley Gera, R. 2019. "Student learning outcomes in Tanzania's primary schools: Implications for secondary school readiness." Washington, DC: World Bank.

Bashir, S., Lockheed, M.E., Ninan, E., Tan, J.-P., 2018. *Facing Forward: Schooling for Learning in Africa*. Washington, DC: World Bank.

Bold, T., Filmer, D., Molina, E. and Svensson, J. 2017. "The Lost Human Capital: Teacher Knowledge and Student Achievement in Africa." Available at: https://riseprogramme.org/sites/default/files/inline-files/Bold.pdf. Accessed March 4, 2023.

Evans, D. and Acosta, M. 2021. "How to Recruit Teachers for Hard-to-Staff Schools: A Systematic Review of Evidence from Low- and Middle-Income Countries." Center for Global Development Working Paper 595. Washington, DC: Center for Global Development.

Gad, B.K., 2015. "Recruitment and Retention of Public Sector Teachers in Ghana: A Discrete Choice Experiment." Accra, Ghana: University of Ghana.

Government of Tanzania. 2013. Early Grade Reading Assessment results.

Government of Tanzania. 2014. "Education NKRA Lab Report." Available at: https://files.givewell.org/files/DWDA%202009/SDI/Tanzania%20-%20Big%20Results%20Now%20Presentation.pdf. Accessed March 4, 2023.

Lautharte, I., De Oliveira, V. H., Loureiro, A. 2021. "Incentives for mayors to improve learning evidence from state reforms in Ceará, Brazil." World Bank Policy Research Working Paper 9509. Washington, DC: World Bank.

Majgaard, K., and A. Mingat. 2012. *Education in Sub-Saharan Africa: A Comparative Analysis.* Washington, DC: World Bank.

Mulkeen, A. 2010. *Teachers in Anglophone Africa: Issues in Teacher Supply, Training, and Management*. Washington, DC: World Bank.

Mwenda, D.B., Mgomezulu, V.Y., 2018. Impact of Monetary Incentives on Teacher Retention in and Attraction to Rural Primary Schools: Case of the Rural Allowance in Salima District of Malawi. *African Educational Research Journal* 6, 120–129.

UNESCO Institute for Statistics (UIS). 2023. Government expenditure on education, total (% of GDP) - Tanzania, Sub-Saharan Africa. UIS Stat Bulk Data Download Service. Available at: https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=TZ-ZG. Accessed: March 4, 2023.

United Republic of Tanzania, Ministry of Education, Science and Technology. 2020. *Pre-Primary and Primary Teacher Deployment Strategy 2019–2021*. Dodoma, Tanzania: United Republic of Tanzania Ministry of Education, Science and Technology.

UWEZO, 2013. "UWEZO Tanzania 2013: Are Our Children Learning?" Dar es Salaam: Uwezo.

World Bank. 2019. "Tanzania Public Expenditure Review 2019: Matching Resources to Policy." Washington, DC: World Bank.

CASE STUDIES OF SUCCESSFUL REFORMS TO ADDRESS THE CHALLENGES OF

FINANCING EDUCATION SYSTEMS EFFECTIVELY

WORLD BANK GROUP