Togo

DATA MUST SPEAK

Unpacking Factors Influencing School Performance in Togo

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Acknowledgements

Data Must Speak research coalition of donors:

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1. Introduction: the Data Must Speak initiative in Togo

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Since 2014, UNICEF Innocenti - Global Office of Research and Foresight has been helping the Ministère des enseignements primaire, secondaire, technique et de l'artisanat du Togo (Ministry of Primary, Secondary, Technical and Artisanal Education [MEPSTA]) to ensure better use of data by education stakeholders, as part of the Global Partnership for Education's funding of global and regional activities. This is the Data Must Speak (DMS) initiative. This initiative aims to build the capacity of national systems to implement and use feedback processes and tools at the decentralized level and in schools to increase accountability and community participation. It also seeks to improve knowledge of the factors necessary for the sustainable use of monitoring and feedback tools and systems. Among other things, the DMS initiative has enabled the automated creation of dashboards, which provide an overview of resources and results for all schools and school inspectorates in Togo.

Building on this success, MEPSTA embarked on implementing the DMS research in 2021. The research focuses on analysing performance factors in the Togolese education system and identifying so-called "positive deviant schools," i.e., schools that do exceptionally well given the context in which they operate and the resources available to them. This report is the result of the first stage of the DMS research in Togo, namely the analysis of the performance factors of Togolese schools.

The next stages will be to select positive deviant schools (Stage 2) and conduct qualitative and quantitative surveys within schools (Stage 3) to identity positive deviant practices and behaviours that lead to good outcomes in Togo. Stage 4 of the DMS research in Togo will be to analyse how to scale up the practices and behaviours identified.

Section 2 of the report describes the Togolese education system, how it functions and the challenges it faces. Section 3 presents the DMS research and the research questions addressed in this report in more detail. Section 4 describes the data used in the analysis and section 5 presents the findings. These are analysed in section 6 and are followed by the conclusion.
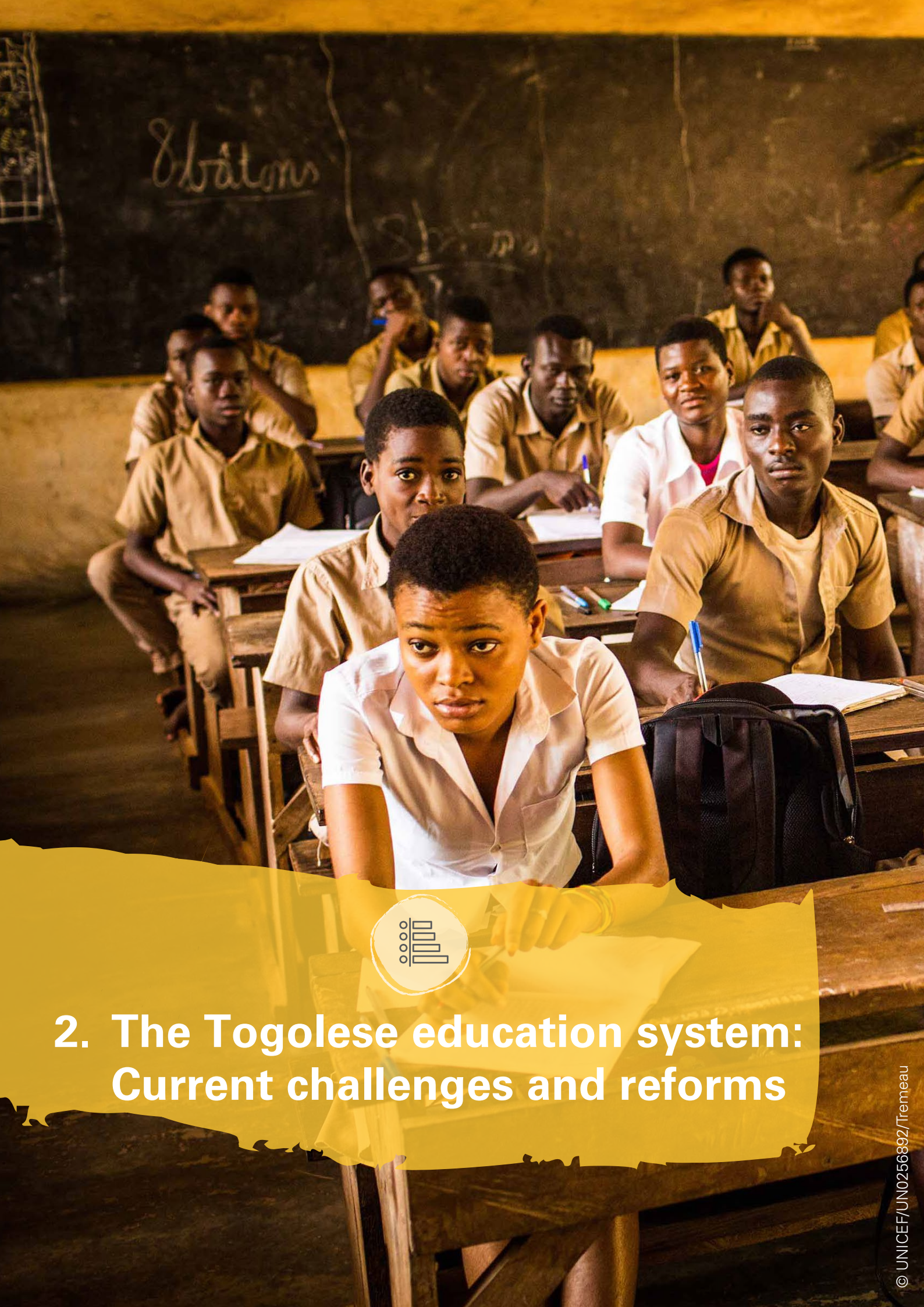
2. The Togolese education system: Current challenges and reforms

The Togolese education system: Challenges and current reforms

2.1. Presentation of the Togolese education system

Togo's educational institutions are based on the 1975 reform and were modified in 2005. The levels of teaching are as follows:

Preschool education

Preschool education: Formal preschool education is provided in kindergartens, which cater to children aged 3 years and older for two years, free of charge. The Education Sector Plan 2014–2025 calls for at least one year of mandatory preschool.

Primary education

Primary education: Access is free in schools funded and run by the Government. Primary education is for children aged 5 years and older and lasts for six years. It is organized in three stages, each lasting two years: the preparatory stage (CP1 and CP2); the elementary stage (CE1 and CE2); and the intermediary stage (CM1 and CM2), which culminates in an examination to obtain the Primary School Completion Certificate (CEPD).

Secondary education

Secondary education consists of two stages: lower secondary school (*collège*) and upper secondary school (*lycée*).

The lower secondary stage is for students who have completed their primary education and takes place in general schools (*collèges d'enseignement général* – CEG) and technical schools (*collèges d'enseignement technique* – CET).

Teaching in general schools lasts for four years, culminating in the Lower Secondary Completion Certificate (BEPC). The teaching delivered in the CETs culminates in the Vocational Diploma.

The second stage of secondary education lasts three years and takes place in general secondary schools, technical secondary schools and specialized vocational schools. It culminates in the second part of the Baccalaureate (BAC 2) for general and technical education, respectively. Technical secondary schools also offer a short two-year course, culminating in the Diploma of Vocational Education (BEP).

2.2. Current challenges within the Togolese education system

Togo has an Education Sector Plan that was approved in 2010, with the aim of achieving universal quality primary education by 2020. A sector-specific assessment of the Togolese education system (Rapport sur l'état du système éducatif national – [RESEN]) was carried out in 2012–2013, enabling a review of the existing Education Sector Plan and the development of a new plan for the period 2014–2025. The Government of Togo subsequently revised the Education Sector Plan for the period 2020–2030 in line with the National Development Plan, the Sustainable Development Goals, the West African Economic and Monetary Union reforms and the African Union's Agenda 2063.

Despite the Government's efforts, challenges in access, equity, quality and governance remain. In primary school, the gross enrolment rate (GER) in year 1 was 125.7 per cent in 2020/21 (National Institute for Statistics and Economic and Demographic Studies [INSEED], 2021), reflecting the system's ability to enrol all 6-year-olds nationwide. There are, however, regional disparities: the Central region, for example, has a GER below 100 per cent (85.7 per cent). The GER in the first year of secondary school is only 73.2 per cent, despite a notable increase in recent years (by 3.1 percentage points between 2019/20 and 2020/21), with strong regional disparities (ranging from 60.4 per cent in the Savanes region to 91.7 per cent in Golfe-Lomé).

The low level of access to secondary school may be explained by the relatively small number of students who complete their primary education. For example, 89 per cent of students completed CM2 in 2020/21, a drop of five percentage points compared with 2016/17. However, only 79.8 per cent of students successfully completed their primary education according to the 2017 Multiple Indicator Cluster Survey (MICS, 2019). Lower secondary school completion rates have been increasing in recent years, but remain low: 57 per cent of students completed their fourth year in 2020/21 and, according to the 2017 MICS (MICS, 2019), 47.4 per cent finished lower secondary school.

Moreover, Togo has significant gender inequalities in terms of the chances of completing primary and lower secondary school. For example, 83 per cent of boys finish primary school, compared to 76.4 per cent of girls. In lower secondary school, the gap is even wider: 54.9 per cent of boys versus 34.1 per cent of girls, according to the MICS.

The Togolese education system is also facing difficulties in terms of student learning. According to the evaluation reports of the Programme for the Analysis of Education Systems by the Conference of Ministers of Education of French-Speaking Countries (PASEC, 2014; PASEC, 2019), 75.6 per cent of Togolese students did not reach the minimum skill level in reading and writing, and 53 per cent in mathematics, at the start of their primary education in 2019. While the figures for reading and writing were higher than for 2014 (by 3.4 percentage points), they decreased in mathematics (by 5 percentage

points). Togo is now in last place among the 14 countries that participated in the PASEC assessment of mathematical skills at the start of their education. PASEC evaluation reports at the end of education indicate that, in 2019, 61.1 per cent of Togolese students did not reach the minimum skill level in reading and writing, and 63 per cent in mathematics. Reading and writing scores have been stable since 2014 but have dropped more than 10 percentage points in mathematics. This shows that Togo's performance in terms of the quality of education is relatively mediocre and tends to stagnate or even regress, despite efforts made in recent years to improve the quality of learning, such as the implementation of new curricula, the provision of textbooks at the preschool and primary levels, the construction of new national teacher training colleges, including the recruitment and training of student teachers, and teacher training and awareness campaigns to reduce repetition rates at the primary level, as well as subsidies for schools and research activities to improve the quality of primary schools.

2.3. Education policies and current reforms

Togo has implemented several educational policies in recent years to meet the challenges of student access and retention, as well as the poor quality of learning.

1.
Reform of teacher training and recruitment

The reform of the national teacher training colleges and the higher education institutions, adopted in 2018 and implemented in 2021, includes doubling the length of teacher training for preschool

and primary school teachers from one to two years. At the secondary level, the national teacher training colleges will now be attached to the universities. In addition, access to these schools will no longer be by competitive examination but on the basis of examining applications. This policy aims to develop a pool of teachers that can be used by both the private and public sectors.

Teacher recruitment has also been modified and devolved to the regions. Teachers will be recruited from the pool trained in the national teacher training colleges and private schools will have to recruit from the same pool. Moreover, the policy includes the introduction of incentives to encourage women to enter the teaching profession and therefore increase the percentage of female teachers. A gender parity quota for teacher training is also being considered.

2.
New textbooks and curriculum

The curricula used by Togo before 2014 dated back to 1980 and were inadequate in the current context of globalization. They were difficult for teachers to understand and consisted of a broad list of content with no objectives or guidance to help teachers prepare lessons. Curriculum reform was only launched in 2014 with support from the Global Partnership for Education, as part of the implementation of the second phase of the Projet Éducation et renforcement institutionnel (Education and Institutional Strengthening Project – [PERI 2]).

It is gradually being applied to all levels of education, starting with CP1 in 2014. Togo now has French and mathematics textbooks from CP1 to CE2, as well as language and communication, graphics and arithmetic textbooks for preschool and kindergarten, all accompanied by teacher guides. All teachers involved in early childhood to

CE1 classes have been trained in the new curriculum. Since then, the new textbooks have been distributed free of charge to all preschools and primary schools in the country every year.

The curriculum development process for CM1 and CM2 will continue as part of the launch of the Basic Education Quality and Equity Improvement Project in 2022.

It should be noted that in parallel with the development of curricula at the preschool and primary levels, a curriculum review has started in secondary schools with the support of the French Development Agency, as part of the implementation of the Projet d'appui à la réforme des collèges (Secondary School Reform Support Project – [PAREC]).

3. School building

A plan is under way to create and implement a school map to respond effectively to the demand for education.

School openings are subject to four key standards to ensure that the geographical distribution of schools provides universal primary education: i) the distance between the school and the students' homes; ii)

the maximum size of the school; iii) the minimum population; and iv) the minimum infrastructure package required to open a school. These standards have been revised to meet the objectives of the Education Sector Plan, based on needs identified in the field.

The Government is considering an ambitious programme to construct two-classroom buildings for preschool education in new public primary schools and in existing schools that do not have them, in accordance with accessibility and inclusion standards; three-classroom buildings in public primary schools that do not have physical premises or are overcrowded; four-classroom buildings in public lower secondary schools that do not have physical premises or are overcrowded; and three-classroom buildings in public upper secondary schools that do not have physical premises or are overcrowded, in order to maintain the momentum of supply and foster demand for preschool, primary and secondary education.

Implementing this programme within the framework of the Government's road map for 2020–2025 will involve "strengthening the physical infrastructure and equipping schools with digital tools" through the construction of 25,000 classrooms in public schools at the preschool, primary and secondary levels; modernizing existing facilities (including toilets); and connecting public schools to the Internet. Building classrooms will allow a ratio of 40 to 45 students per classroom.

4. School management

Togo plans to strengthen community participation to ensure effective and efficient school management. Accordingly, the Government has updated the legislation establishing school management boards to give more roles and responsibilities to communities in school management and leadership.

In addition to head teachers, who are responsible for the administrative management of activities in their schools, school management boards – comprising parent representatives, staff members and key resources from the local community – are the bodies responsible for implementing school projects. Specifically, the Public Primary School Resource Management Boards and the Public Secondary School Resource Management Boards are expected to support schools to achieve results and monitor them to ensure they are performing adequately.

Communities are thus positioned as key players in the new governance arrangements for schools. Measures to organize communities more effectively and raise their awareness of the importance of children's

education are planned. Parent-teacher associations, Public Primary School Management Boards and other community organizations will be strengthened and supported to carry out social mobilization actions to support education.

Finally, the practice of school projects will be rolled out to all secondary schools, as a strategy that establishes results-based management with effective community participation. The ability of the Public Primary School Resource Management Boards and Public Secondary School Resource Management Boards to fully assume their functions is one of the keys to the implementation and success of school projects. They will, for example, have access to several training programmes, accompanied by systematic use of the guide to developing school projects. Simplified dashboards will also be developed to enable community stakeholders to actively participate in the governance of the education system at the local level. These will allow the community (parents, Public Primary School Resource Management Boards, Public Primary School Management Boards, etc.) to have access to key information about their school and its environment. Based on the lessons learned from the PAREC and PERI projects, communities will be mobilized to help build infrastructure and improve conditions for all children, especially those with disabilities.
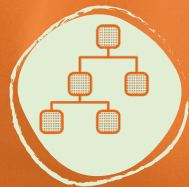
3. Research objectives

Research objectives

3.1. Stages of research

The DMS initiative, conducted in partnership with MEPSTA, aims to identify performance factors in the Togolese education system. Four stages for this research were agreed with MEPSTA.

Stage 1

Stage 1, which is described in this report, involved a quantitative analysis of administrative data from the education system to identify which school input factors are correlated with better student performance. This analysis should make it possible to provide Togolese decision makers with education policy options, particularly by quantifying the possible gains from changing certain parameters set out in the education policies (for example, class size or teacher training).

However, only a small portion of the schools' performance can be explained by the available data.

Stage 2

The second stage of the research will identify positive deviant schools in Togo, i.e. schools that are exceptionally successful given the resources at their disposal and the context in which they operate. These schools are rare gems, and the measures they put in place to achieve these results can inform other schools and identify practices and behaviours that can be scaled up to improve the Togolese education system.

Stage 3

The third stage of the research will collect additional quantitative and qualitative data from the positive deviant schools and a control group to identify performance factors not captured in the administrative data, such as school management, head teacher and teacher behaviours, or classroom teaching practices. The results of Stages 2 and 3 will be the subject of a second report.

The final stage of the research will analyse how to scale up the positive deviant behaviours and practices identified during the third stage.

3.2. Research questions

The following research questions were formulated by the MEPSTA and DMS technical teams to guide the analysis in this Stage 1 report:

1. Does the Togolese education system succeed in reducing inequalities in terms of gender, location and wealth?

2. Are teacher recruitment policies and reforms relevant and effective?

3. What are the effects of changing the distribution of school inputs (for example, class size, textbooks)? What investments could maximize the performance of the education system?

4. Do poor learning environments for children, such as a lack of latrines, impact school performance?

4. Data

Data: Description of administrative and examination databases

The process of collecting these data from the EMIS, the information contained in the databases, their limitations and the process of creating the basis for the first stage of the DMS research (quantitative analysis) are described in more detail in the annex.

The quantitative analyses are based on two administrative databases produced by MEPSTA:

1) The Education Management Information System (EMIS) for the period 2013–2021

2) Examination results databases for the period 2014–2021

5. Modelling of performance factors

Modelling of performance factors

5.1 Presentation and justification of the choice of performance variables used

Five main performance variables were used:
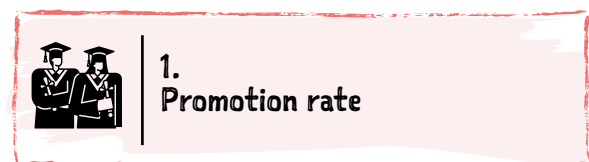
1. Promotion rate

The promotion rate is the percentage of students in a given class who move up to the next class. In 2019/20, promotion rates in the public and community systems were 81.6 per cent and 72 per cent, respectively, in primary and lower secondary schools. The promotion rate is a key indicator of the education system. Students who do not advance to the next class have either repeated a year, which represents an academic failure and a significant cost to the education system, or dropped out of school, which defeats the purpose of ensuring education for all. The promotion rate is our main performance indicator, as it can be calculated for all levels and is associated with the above-mentioned objective.

It depends in part on students' learning. In practice, repetition is decided on the basis of results at quarterly meetings organized by the inspectorates. However, the promotion rate can be influenced by policy choices and vary from year to year (it increased in the year of the COVID-19 crisis, for example), but the models capture this by adjusting for the year under consideration.

Similarly, the promotion rate varies considerably from one level to another, since repeating the first year in each stage (CP1, CE1 and CM1) is normally prohibited. The models therefore take the level into account to reflect this situation.

2. Repetition rate

Repetition in Togo is decided on the basis of students' results at quarterly meetings organized by the inspectorates. A high repetition rate in a school is therefore an indicator of poor student learning. The repetition rate is 6.5 per cent in primary school and 14.6 per cent in lower secondary school according to EMIS data.
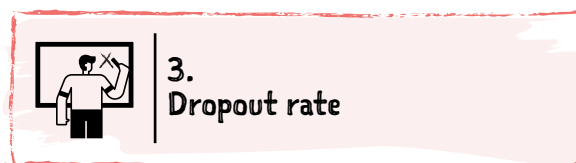
3. Dropout rate

Dropping out of school or leaving early is a sign of poor learning and a school environment that is not conducive to student development. Dropout rates are 12.4 per cent and 13.7 per cent in primary and lower secondary school respectively, according to EMIS data.

4. The average obtained in the end-of-primary school (CEPD) or end-of-secondary school (BEPC) examinations
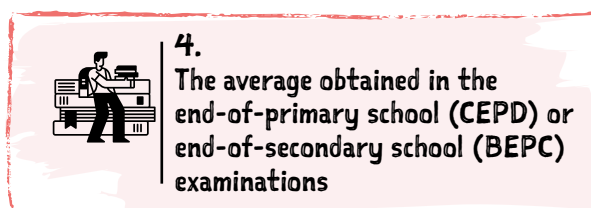
The examinations for the end of primary school (CEPD) and the end of secondary school (BEPC) are harmonized at the national level. The results of these examinations are therefore a reliable indication of the level of student learning.

5. CEPD and BEPC admission rate

The admission rate is, of course, closely related to average examination grades, but an analysis of the data also reveals policies that can help students proceed to the next stage. In recent years, the CEPD and BEPC admission rates were 69.1 per cent and 60.9 per cent, respectively.

The development process for the performance variables is described in the annex.

5.2 Descriptive statistics about the database

Means, standard deviations, minimum and maximum values, and the number of observations of the variables used for analysis are reported in the tables in the annex. Averages are calculated at the individual student level, and samples are limited to observations between 0 and 150 per cent for the promotion rate in public and community schools, as is the case in the analysis.

The promotion rate tends to be higher in primary than in lower secondary school (78.1 per cent versus 66.8 per cent) for the analysis period. As can be seen in Figure 1, the primary promotion rate has remained relatively stable over time, but was higher in 2019/20 and 2020/21, likely due to automatic promotion policies put in place following school closures to address the COVID-19 pandemic.

The lower secondary school promotion rate has seen greater variation over time and has also increased sharply since 2019/20.

Figure 1: Primary and lower secondary school promotion rates from 2013/14 to 2019/20
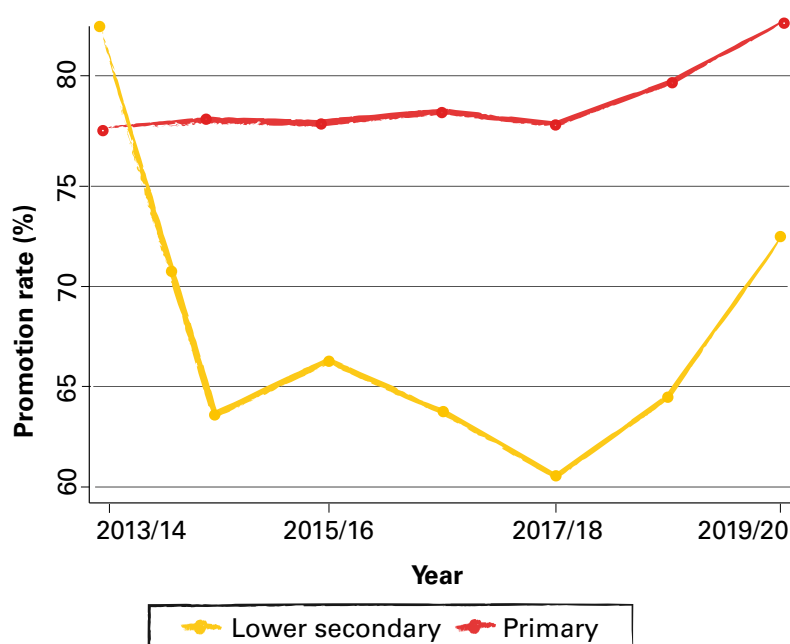
The promotion rate also varies by region and is higher at the primary level in Lomé and Maritime. Lomé also has the highest promotion rate at the lower secondary level, just ahead of the Kara region. These regional differences may reflect differences in school populations. For example, 13.4 per cent of primary school students in Lomé have parents who are civil servants while 10.3 per cent are farmers or livestock farmers, whereas in the rest of the country, 72 per cent of parents are farmers or livestock farmers and 4.7 per cent are civil servants. Differences between regions can also, however, be the result of unequal staffing. For example, the student-teacher ratio (STR) in secondary schools is lowest in the Kara region with 37.2, and highest in the Savanes region with 47.3 students per teacher.

Figure 2: Promotion rates by region
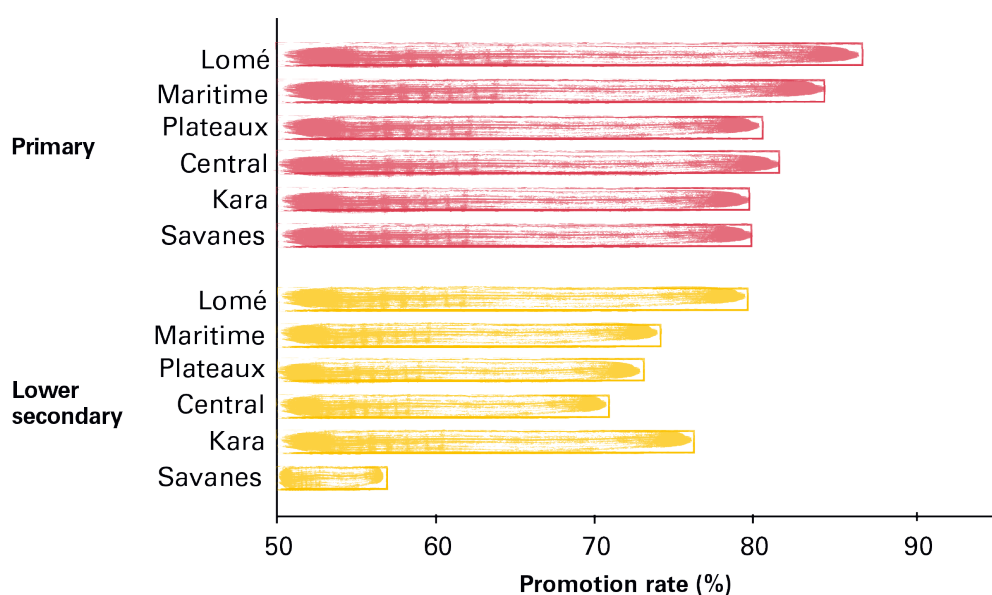
Note: Years 2019/20 through 2020/21.
Promotion rates in the final year of primary school (CM2) and fourth year of lower secondary school correspond to examination pass rates.

The promotion rate is also higher in urban areas (85.9 per cent and 77.3 per cent in primary and lower secondary, respectively) than in rural areas (80.3 per cent and 68.7 per cent). But there are also differences based on the accessibility of the environment. Schools that report not being seasonally accessible in rural areas (covering about 12.5 per cent of primary school students) have significantly lower promotion rates. Above all, the differences between girls and boys become more pronounced in these areas, whereas girls do slightly better than boys in urban areas (see **Figure 3**).

Figure 3: Primary school promotion rates for girls and boys in urban, rural and remote rural areas
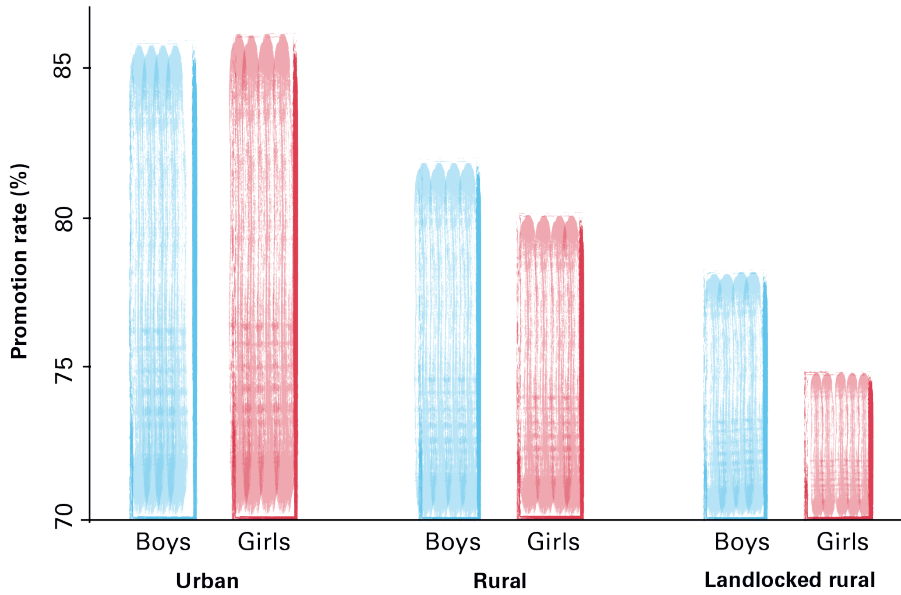
Note: Years 2019/20 to 2020/21. The promotion rate in CM2 is in line with the pass rate in the CEPD examinations.

5.3 Methodology for modelling performance factors

Multivariate models were estimated in order to estimate the factors associated with student performance. Explanatory variables were selected based on their relevance to the research questions, variability,[1] data quality, low non-response rate, and association with the performance variables. The goal was to accurately estimate the relationship between variables of interest (such as class size or number of textbooks per student) and performance variables (such as promotion rates or examination grades), which can inform policymakers.

A challenge in our analysis is to ensure that the estimated relationships can be interpreted as causal effects and not as simple correlations. We observe, for example, that student performance is better when students have textbooks. But that does not necessarily mean that distributing more textbooks will improve academic performance. It is possible, for example, that schools with more textbooks also have better school facilities (such as blackboards or seating capacity). Our strategy for identifying the true effect of more textbooks is to test school resources using other variables, to compare schools that are identical in terms of academic resources. However, even controlling for other variables, it is possible that there are unobserved variables in the EMIS database,

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[1] Variables with little variability are not included in the model, since they contribute little to the results and may introduce multi-colinearities.

such as the managerial abilities of the head teacher, which are correlated with the presence of textbooks and good educational performance. If this is the case, the positive relationship we observe between these two variables could be due to the fact that schools with more textbooks are also better managed, and distributing more textbooks would not have the desired effect. In order to reduce this type of bias, we have also introduced school fixed effects into the model. In practice, we have data for several years and levels, disaggregated by gender, for each school, which allows us to introduce a school fixed effect in the model that in turn allows us to check all the factors that are stable over time (for example, poverty within the area considered or families' motivation with regard to school). Because the school fixed effect controls for all parameters that are stable over time, the estimated relationships are derived from the variance of the parameters within schools (either over time, between different levels, or between girls and boys). The availability of textbooks within a school, for example, varies between levels and over time.

The model then estimates for each school whether performance is better for levels and years for which there are more textbooks available. Each school thus constitutes its own control point, which ensures that the observed relationships between the variables of interest and the performance variables are not due to systematic differences between schools.

5.4 Findings

The models reveal the factors associated with a higher promotion rate (expressed as percentage points), repetition and dropout rates, the average score out of 20 on the end-of-primary (CEPD) or end-of-lower-secondary (BEPC) examinations, and the admission rates for these examinations.
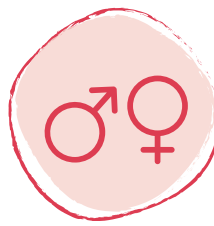
Student gender

Girls in Togo perform worse than boys.
National statistics show that the promotion rate for boys is about 0.9 percentage points higher than for girls in primary school. The gap rises to 4.1 percentage points in lower secondary school (see descriptive statistics presented in **Figure 4)**. There has been no significant improvement in recent years, and the gap between girls' and boys' promotion rates even increased after the 2019/20 school year, when schools had to close due to the COVID-19 pandemic. The gaps between girls and boys tend to widen over the course of primary school. Girls even have a slightly higher promotion rate than boys in the first two years of primary school (CP1 and CP2), but the trend reverses from the fourth year (CE2) onwards. At the end of the fifth year of primary school (CM1), girls' promotion rate to the final year (CM2) is 3.5 percentage points lower than boys'. Girls also perform worse on the CEPD examinations: their pass rate is 3.9 percentage points lower than boys' and their average out of 20 is 0.3 points lower. The gender gap persists in lower secondary school, where boys have consistently higher promotion rates than girls.

Figure 4: Promotion rates by gender
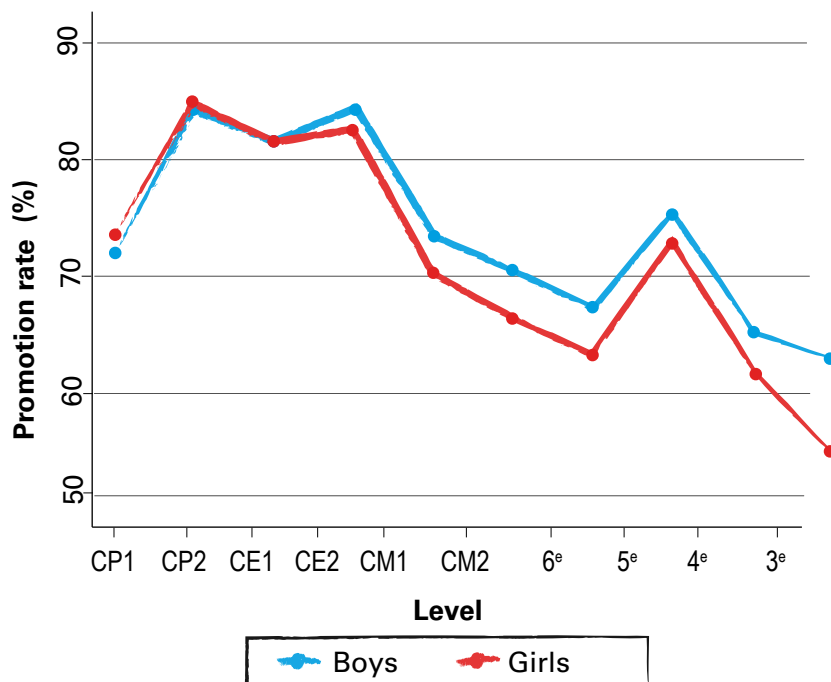
Note:
CP1: First year of primary school. CP2: Second year of primary school. CE1: Third year of primary school. CE2: Fourth year of primary school. CM1: Fifth year of primary school. CM2: Sixth (final) year of primary school. 6e: First year of lower secondary school. 5e: Second year of lower secondary school. 4e: Third year of lower secondary school. 3e: Fourth (final) year of lower secondary school.

Promotion rates in the final year of primary school (CM2) and fourth year of lower secondary school correspond to examination pass rates.

The models take student gender into account at the primary and lower secondary school levels. Interactions have been modelled between the variables analysed and student gender: teacher gender, head teacher gender, length of journey to school and presence of latrines. In practice, these variables may have different impacts on students depending on their gender. For example, girls are more successful when taught by a female teacher (**see Table 1**). In primary school, the promotion rate for girls is lower than for boys (76.7 per cent versus 78 per cent) when the teacher is male, but when the teacher is female, the girls' rate is higher than for boys (78.1 per cent versus 76.4 per cent). Models exploring factors associated with repetition and dropout rates show that the impact of female teachers on girls' education is notably linked to a reduction in the dropout rate for girls. The results are confirmed by models using CEPD scores, which show that girls average 0.37points lower than boys when the teacher is male, but only 0.24 points lower when the teacher in CM2 is female. Only 16.9 per cent of students have a female teacher, mostly in the earlier classes.[2]

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[2] A total of 21.1 per cent of students have a female teacher in CP1. This drops to 4.2 per cent in CM2.

Table 1: Simulated promotion rates by student and teacher gender[3]

| | Primary | | Lower secondary | |
	Male teacher	Female teacher	0% female teachers	25% female teachers
Boys	78%	76.7%	67%	65.2%
Girls	76.4%	78.1%	60.9%	62.9%
Total	77.3%	77.3%	64.4%	64.2%

More female teachers at the primary level could make girls more successful without lowering the total promotion rate. The findings at the lower secondary level also indicate a relationship between teacher gender and performance for both girls and boys. Data on teachers in the lower secondary school database are an average for the lower secondary school level.

Accordingly, the "female teacher" variable refers to the percentage of female teachers in the school. There are only 8.1 per cent of female teachers at the lower secondary school level, and 52.6 per cent of students attend a lower secondary school with no female teachers. For ease of reading the table, the impact of female teachers in lower secondary schools is considered for a lower secondary school with 25 per cent of female teachers rather than 0 per cent. **As at the primary level, more female teachers could reduce the gaps between the promotion rates of girls and boys without significantly impacting the total promotion rate.** The effect of female teachers is particularly important in the model explaining school dropout. These results are confirmed by the model explaining BEPC scores. **For example, admission to the BEPC increases sharply for girls when there are more female teachers in the school.**

Similarly, the gender of the head teacher is associated with better outcomes for girls at the primary level, including a lower dropout rate for girls when the head teacher is female (a 0.8 percentage point decrease).

The dropout rate for boys remains the same regardless of the gender of the head teacher, while the gap between girls and boys in terms of average scores and admission to the CEPD also decreases when the head teacher is female. The positive associations between the head teacher's gender and academic outcomes are not seen at the lower secondary school level. These findings are in line with the results of other studies that show that women are underrepresented in leadership positions, despite the fact that student outcomes appear to be better when the head teacher is a woman (Bergmann et al., 2022).

The impact of the distance between home and school varies by student gender. While boys do not appear to be affected by a longer average journey to school at the primary level, girls' promotion rate decreases by 0.3 percentage points when the average distance increases by one mile.

The impact of travel time is negative for boys in lower secondary school, but this effect is more than doubled for girls (0.5 percentage points fewer for boys versus 1.3 percentage points for girls). **In both cases, distance appears to primarily affect the promotion rate of girls, particularly by influencing the dropout rate.** This may be because girls face more danger than boys when they have to go to school or because families are reluctant to let their daughters travel away from home. **Finally, the presence of latrines is associated with a lower dropout rate for girls than for boys at the primary level.**

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[3] Promotion rates were estimated on the assumption that all characteristics remained the same and that only teacher and student gender changed.

The results show clear differences between the performance of girls and boys, and also provide clues as to why. The fact that girls do better with women on the teaching staff or in management positions indicates that gender inequalities in Togo are not inevitable and that girls can succeed as well as boys when they are in a positive environment. The data are too limited to understand why girls do better with female teachers, and the next stages of the DMS research in Togo may reveal differences in behaviour or teaching practices between male and female teachers. However, it should be noted that the positive effect of female teachers on girls' enrolment has been observed in other contexts[4] and may be explained by girls' greater motivation to succeed when they have a female role model or by different practices and behaviours among female teachers. **Togo could thus promote gender equality by recruiting more female teachers and head teachers.** School conditions are also important factors for gender equality. **Reducing the distance to school (or providing public transportation) and building more latrines could have significant benefits for girls.**

Socioeconomic background of students

Urban students have higher promotion rates than rural students throughout their school career (**see Figure 2**). Given that the models take school fixed effects into account, it is impossible to take the "urban/rural" variable into account in the models. However, the school fixed effects analysis shows that rural schools consistently perform worse than urban schools, even after controlling for school inputs and parents' socioeconomic background.

Descriptive statistics also show very significant differences by parental occupation. **Children of civil servants and skilled tradespeople do much better than children of farmers or livestock farmers throughout their school career.** These differences remain in the multivariate models and highlight strong inequalities by parental social background: children of civil servants are 2 and 6.5 percentage points more likely to move to the next class than children of farmers in primary and lower secondary school, respectively. This shows that the Togolese education system is not succeeding in eliminating inequalities due to the socioeconomic background of students.

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[4] See, for example, Lee, Rhee and Rudolf (2017) for an analysis of 10 West African countries, including Togo, and Muralidharan and Sheth (2014) for a study of India using a methodology similar to ours.

Figure 5: Promotion rates based on place of residence
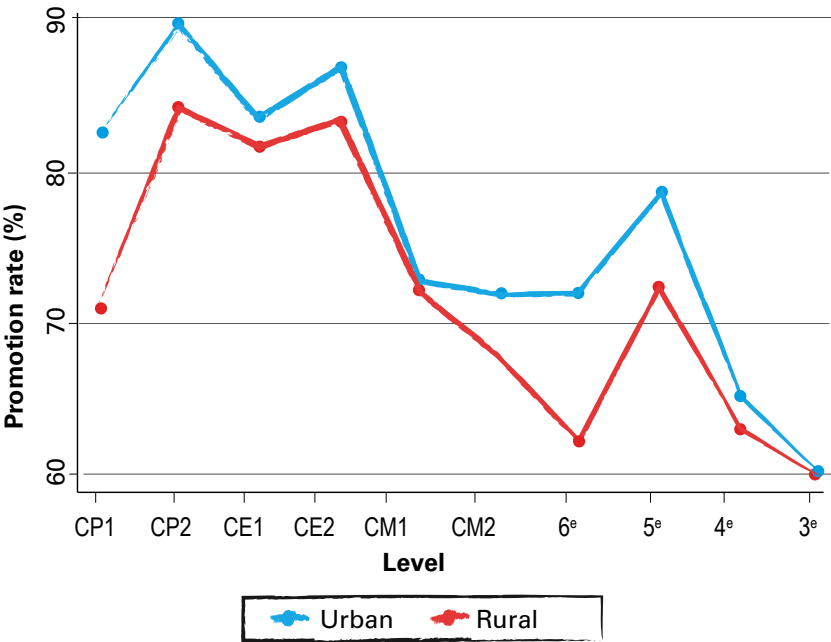
Note: Promotion rates in CM2 and the fourth year of lower secondary school correspond to examination pass rates.

Figure 6: Promotion rates by parental occupation
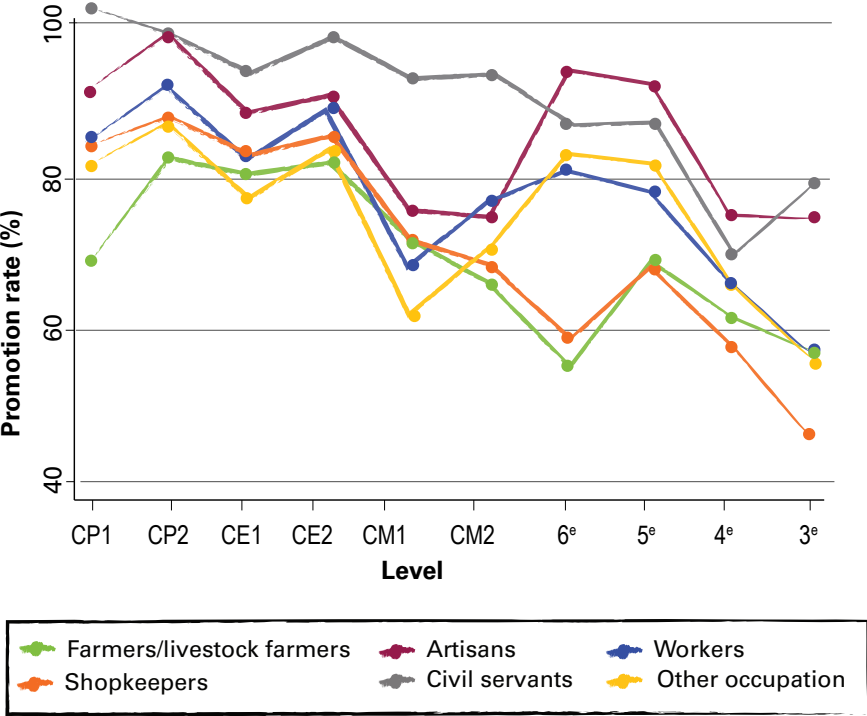
Note: Promotion rates in the final year of primary school (CM2) and fourth year of lower secondary school correspond to examination pass rates.

Other student characteristics

The models also use variables corresponding to the average age of students and the percentage of students repeating the year in the class. **Average age tends to be negatively correlated with student performance,** probably because students who start school later experience other economic or social difficulties that negatively influence their learning.

The percentage of students repeating the year is positively associated with the promotion rate in primary school and negatively in lower secondary school. It is difficult to interpret this variable, which was introduced into the model primarily as a control variable. We find that in primary and lower secondary school a high percentage of students repeating the year in the class is associated with more repetition at the end of the year and a lower dropout rate. This may be because the students involved are more likely to repeat a year if they fail rather than drop out.

Teacher characteristics

The models include data on teacher characteristics, including experience, age, professional training, academic level, status and gender, as discussed in the previous paragraph.

At the primary level, the age of teachers is not correlated with the promotion rate; however, it is positively correlated with the repetition rate and negatively correlated with the CEPD pass rate. As for the more experienced teachers, their students tend to have somewhat lower promotion rates, but the coefficient is low (down 0.2 percentage points for every 10 years of additional experience). In lower secondary school, teacher experience appears to have positive effects on student promotion rates, with a 1.9 percentage point increase for every 10 years of additional experience.

The academic level or professional training of teachers appears to have little association with student outcomes, with little significant difference in performance based on teacher qualification level. It is worth noting that in primary school, students in CM2 perform better on the CEPD when teachers have graduated from a national teacher training college (0.14 points higher for the average out of 20 and 1 percentage point higher for the pass rate), but teachers with a Vocational Diploma or Elementary Education Teaching Qualification (CEAP) do not perform better than those without a professional qualification. In lower secondary school, we again find that the percentage of teachers with professional qualifications is not related to better student outcomes. Similarly, at both the lower secondary and primary school levels, teacher academic qualifications are not correlated with better outcomes. **The lack of a link between teacher professional training and student performance invites examination of the relevance of training programmes. At the same time, caution should be exercised regarding the expected positive effects of a significant investment in teacher education or recruitment at a higher academic level.**

Teacher performance appears to suffer when the teacher also serves as head teacher (down 0.5 percentage points) at the primary level, which may be due to an excessive administrative workload. For example, UNICEF's Time to Teach study in Togo shows that administrative overload was difficult for head teachers to manage (Peirolo and Jávita, 2021). However, a policy to reduce the workload of head teachers could be costly, as it would be ineffective unless nearly 5,000 additional teachers were hired to support all heads.

Hiring so many additional teachers would certainly be more useful in reducing class sizes (reducing the STR from 44 to 37). It may, for example, be more appropriate to reduce the administrative workload of head teachers by simplifying procedures or by assigning administrative assistants to the larger schools. Finally, **volunteer teachers consistently perform worse than employed teachers** (0.5 percentage points lower for the promotion rate in primary school; the coefficient is not significant in lower secondary school). Less reliance on volunteer teachers could improve the performance of the school system, but they will have to be replaced by civil servants to avoid increasing the STR.
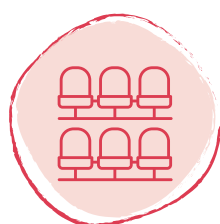
Class size and mixed classes

Class size in primary schools has a strong influence on the probability of moving up to the next class (see **Figure 7**).

Dropout rates increase sharply and CEPD examination results decline with larger class sizes. As a result, reducing class size from 44.3 to 34.3 students could increase the promotion rate by 6.4 percentage points. We controlled for class size squared in the model to capture a possible non-linear relationship between class size and academic performance. The coefficient associated with this variable is positive and statistically significant. This means that the impact of class size tends to be stronger when classes are smaller. Accordingly, moving from 30 to 20 students per class increases the promotion rate by 7.7 percentage points, while moving from 60 to 50 students is associated with only a 5.1 percentage point increase.

The shortage of teachers at the primary level may also be reflected in the propensity of schools, especially small schools, to use mixed-age classes. In 2019/20, 21 per cent of students were in a mixed-age class, but this rate is much higher in rural areas (25.3 per cent) where schools are smaller than in urban areas (5.6 per cent). Mixed-age classes can be difficult for teachers to manage, as they must prepare lessons for two levels and constantly switch between the two. The use of mixed-age classes is associated with a 1.6 percentage point decrease in promotion rates. This is a relatively large difference, again showing that a lack of teachers can harm students.

It is impossible to know the exact class size in lower secondary schools since there are several sections per level and several teachers per section. The school's STR does, however, provide an indication of class size. **As in primary school, the promotion rate and BEPC results decrease, while the dropout rate rises when the STR increases.** If the STR were reduced from 50 to 40, the promotion rate could increase by 1.6 percentage points.

Recruiting more teachers can reduce class sizes and avoid the mixed-age approach, however reassigning teachers is another way to combat large class sizes. **In practice, class sizes in Togo vary considerably from one school to another and a better distribution of teachers could improve student performance.**[5] At the primary level, for example, 25 per cent of students are in a class with 30 or fewer children, while 25 per cent are in a class with 57 or more students. Moreover, the degree of randomness in the distribution of teachers in Togo is high compared to other African countries (IIEP Pôle de Dakar, 2016) and has tended to increase in recent years. Fully harmonizing class sizes is impossible because of the need for many small schools in rural areas and the fact that the number of students tends to be lower in the higher classes because of dropouts over time (class sizes range from 52 in CP1 to 35 in CM2). However, it is possible to run simulations to model the impact of reducing the teacher distribution gap on performance.

In 2019/20, the average school-level STR was 40.4, but with a 42 per cent gap.[6] We simulated a situation in which this ratio could not exceed 55 students for a given school. This would require the reassignment of 906 teachers to schools where the ratio is above 55.

If these teachers were recruited from schools with the lowest ratio (below 30.6), the gap would increase to 17 per cent.[7] We carried out further modelling at the primary level, using the STR and ratio squared in place of class size and class size squared, and then predicted what the impact of the new ratio would be. The increase in the promotion rate would be 0.7 percentage points, but it should be noted that it would be higher in urban areas (1.3 percentage points) than in rural areas (0.5 percentage points), since better distribution of teachers to match class sizes has more benefits in urban areas, where STRs are higher.

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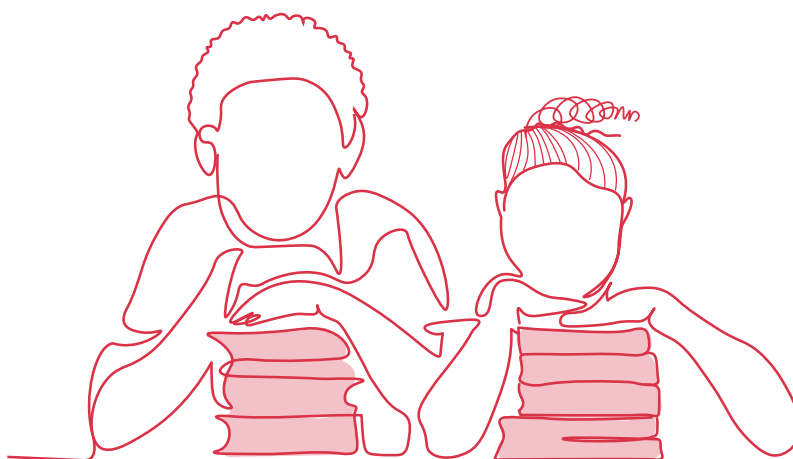
[5] UNICEF is currently working in partnership with the Government of Togo through the Teacher for All initiative to understand and propose solutions to the problem of teacher deployment. For more information, see <www.unicef-irc.org/research/teachers-for-all>.

[6] The degree of randomness is calculated as 1-R2 in a regression where the number of teachers in the school is explained by school size. The degree of randomness thus represents the share of variance in the number of teachers that is not due to school size.

[7] For comparison, the IIEP Pôle de Dakar indicates that this degree of randomness is similar to that found in the Comoros and Lesotho.

Figure 7: Simulated promotion rates and examination grades as a function of class size in primary and lower secondary school
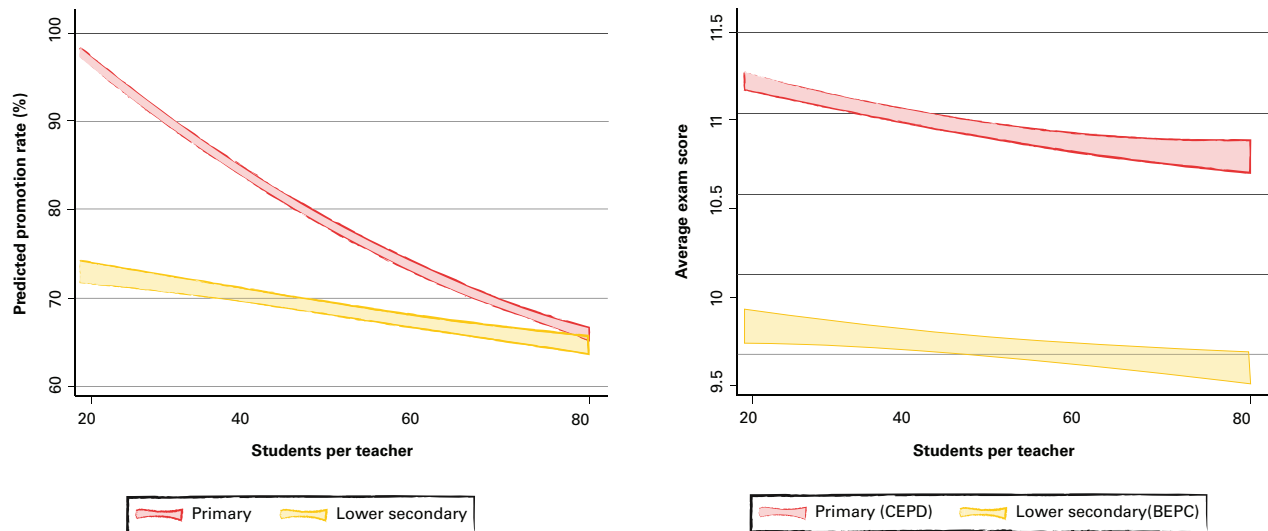
Note: The thickness of the curve represents the 95 per cent confidence interval.

Textbooks

The models reveal other factors associated with better performance. **Thus, the availability of textbooks is positively correlated with a better promotion rate at the primary level.** Textbook availability is measured as the sum of the ratios of textbooks per student available in French, mathematics and all other subjects combined. Students had an average of 1.1 textbooks for a maximum of three textbooks.[8] An additional textbook per student is associated with a 1.1 percentage point increase in the primary promotion rate but does not appear to have an impact on CEPD scores. At the lower secondary level, an additional textbook is associated with a 2.6 percentage point increase in the promotion rate as well as better BEPC scores (0.06 percentage point increase in the average and a 1.6 percentage point increase in the admission rate). As with teachers, there is a significant gap in textbook distribution, with many schools having more textbooks than students. Better textbook allocation or a textbook purchasing policy could have a positive impact on student promotion rates (see **Figure 8**).

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[8] If there is more than one textbook per student, the ratio is cut to 1.

Head teacher characteristics

Other than gender, head teacher characteristics appear to have little influence. Promotion rates decline with the age of the school leader in primary school and with their level of experience in lower secondary school, but the impact is relatively small. At the primary level, there is a significant difference in the promotion rate (2.1 percentage point increase) and in CEPD results (0.15 percentage point increase in the average and 1.4 percentage point increase in the admission rate) when the head teacher has a professional qualification higher than the Certificate of Instructor's Training (CAM). However, 98 per cent of school leaders are in this situation, so there are few potential gains for the education system if all school leaders were trained. At the lower secondary level, having a baccalaureate or a higher qualification is important for head teachers, but, as in the primary level, almost all of them (95 per cent) have a baccalaureate, and it is difficult to improve the educational system by relying on this parameter.

School characteristics

Parent-school relationships in primary school have a positive effect on promotion rates. More actions by Parent-teacher associations or Public Primary School Management Boards increase the promotion rate by 0.07 percentage points.

In lower secondary schools, however, the effect is negative (down 0.16 percentage points). This difference in the effects of school-community relationships by level is interesting and should be the subject of further research.

In both primary and lower secondary school, the number of inspections conducted in the past year is not associated with better outcomes. It appears that schools do not benefit from the inspectors' visits. **At the primary level, there is a relationship between the presence of physical premises on the school site and promotion rates.** In a fully built school, promotion rates are, on average, 0.9 percentage points higher than in a school with no physical classroom. The number of seats per student is highly correlated with promotion rates in primary and lower secondary school. There is an average of 0.76 seats per student in primary school; if all students had a seat, the promotion rate could increase by 0.4 percentage points. In lower secondary school, students have an average of 0.88 seats; if everyone had one, promotion rates would again increase by 0.4 percentage points. This shows that investments in new infrastructure could improve school performance.

Finally, about 3 per cent of primary schools received food supplements, which had a positive effect on promotion rates (0.7 percentage point increase). However, it is important to note that many children receive food supplements outside the school system, and these are not captured in this analysis.

Figure 8: Simulated impact of the purchase of one French and mathematics textbook and one seat per student
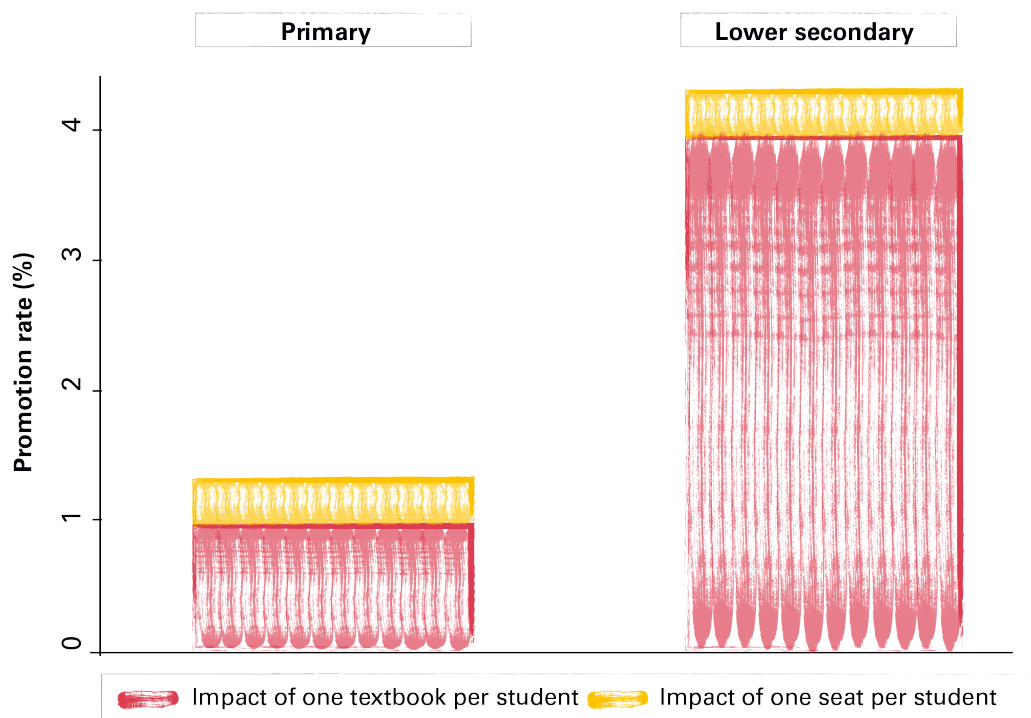
Note: Estimated impact of the purchase of one French and mathematics textbook and one seat per student.

COVID-19 crisis

On 20 March 2020, all schools in Togo were closed to combat the spread of COVID-19. Schools remained closed until the start of the school year in November 2020, with the exception of the exam sessions, when they reopened for a few weeks so that students could sit their examinations.

Schools were thus closed for over seven months and reopened in a context where many parents and teachers were concerned about the health situation. EMIS data collected during the 2020/21 school year allows us to assess the impact of school closures on student promotion rates and retention in the system.

As seen in **Figure 1**, primary and lower secondary promotion rates were higher at the end of the 2019/20 school year than in other years. The models also show that the year fixed effect for 2019/20 is higher than other years,[9] and the breakdown by

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[9] It was down 8.4 percentage points for the lower secondary level, as the promotion rate was exceptionally high in 2014. Thus, the latter was about 6 percentage points higher in 2020 than in other years.

repetition and dropout indicates that this is primarily due to a significant decrease in the repetition rate. In addition, the CEPD admission rate increased (by approximately 10 percentage points compared to the previous two years).

The BEPC admission rate was also slightly higher (by 2 percentage points over the previous year), but given the significant variability in this rate from year to year, it is difficult to conclude that the 2020 pass rate was exceptionally high. **It appears that the closure of schools had the counter-intuitive effect of improving promotion and examination pass rates, undoubtedly as a result of MEPSTA's desire to reduce the use of repetition.** Disaggregated analyses show that this increase in the promotion rate is similar for girls and boys, as well as in rural and urban areas. However, it is only observed in the public sector. Promotion rates in community and private schools were no higher in 2020 than in other years, indicating the influence of some decisions made by the Government. The reduction in the repetition rate is good news, but it can present challenges for students, especially in terms of the impact of school closures on learning.

While the school closures do not appear to have led to an increase in the dropout rate, **fewer children enrolled in the first year in primary school in 2020/21 than in the previous year.** This decrease does not appear to be the result of a decrease in repetition rates, since few children repeat the first year due to automatic promotion to the next class at that level (0.7 per cent in 2019). While the number of new students enrolling has increased steadily in recent years, from 320,000 to 331,000 between the start of the 2018 school year and the start of the 2019 school year, it dropped to 319,000 by the start of the 2020 school year. This 3.7 per cent decline probably conceals an even larger fall if we consider that the number of new students enrolling should have continued to increase.

Figure 9: Number of new students enrolling in the first year of primary school, by gender
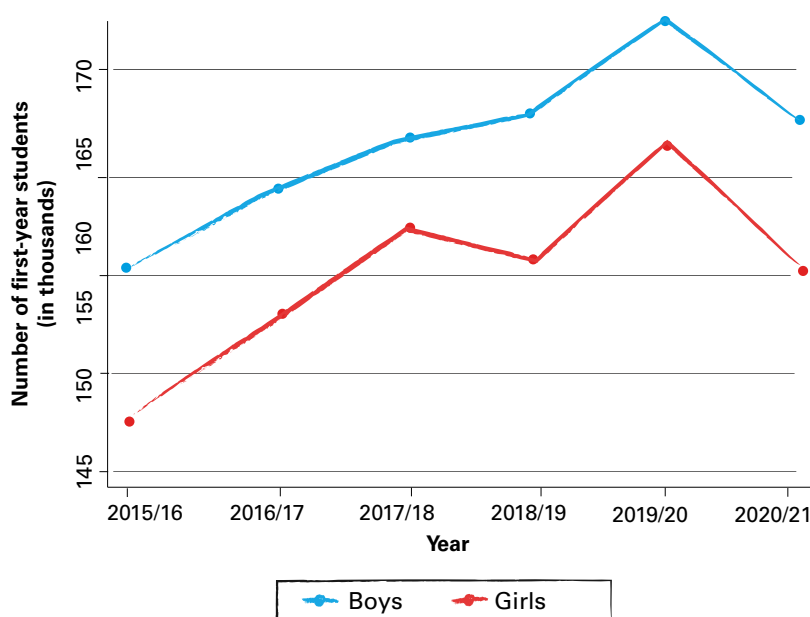
The decline was more pronounced for girls (4.1 per cent fewer) than for boys (3.3 per cent fewer) (**see Figure 9**). The decline was slightly more marked in the public sector (down 4.1 per cent) than in the private sector (down 3.1 per cent), while the number of new students enrolling in the community sector increased slightly (by 2.4 per cent). Finally, the decline was more pronounced in rural areas (4.2 per cent fewer) than in urban areas (2.8 per cent fewer).

This decrease in new enrolments is a concern and may reflect parents' fear of sending their children to school or a lack of awareness among families about schools reopening and the return to normality.

6. Discussion

Discussion

Analyses of the EMIS data set and the examinations database over the past seven years offered a number of insights for education policy.

First, gender equality has not yet been achieved in Togo, but the positive results obtained by girls with a female teacher and/or head teacher indicate that nothing is inevitable. Recruiting more women and offering them the opportunity to reach leadership positions could help reduce the gap between girls and boys. However, this presents challenges, and a targeted recruitment initiative for women in 2014 did not yield satisfactory results due to the low number of qualified female candidates. Moreover, it is not only about recruiting more women, but also about placing them more effectively where they can have the most impact. It is important to note that only 9.7 per cent of primary school students have a female teacher in rural areas compared to 36.6 per cent in urban areas, while it is in rural areas that girls do less well than boys. Similarly, more than 20 per cent of students have a female teacher in CP1 and CP2, where girls do relatively well, while fewer than 10 per cent of students have a female teacher in CM1 and CM2, where the gender gap widens. The lack of female teachers in CM2 also contributes to the lower results of girls in the CEPD and therefore to the difficulties girls have in moving on to secondary school. One of the goals of the next stages in our research is to better understand the reasons why girls perform better when they are taught by women. Some of the good practices implemented by female teachers for girls may be transferable to male teachers, which would allow gender equality to be promoted relatively quickly through better teacher training.

Secondly, the analyses revealed significant differences in outcomes based on students' social background or place of residence. Children of civil servants, who undoubtedly grow up in wealthier and better-educated families, do significantly better than others, even after controlling for school characteristics. Schools in rural areas are also less successful. It is therefore apparent that the Togolese education system is unable to eliminate inequalities due to social background. Better allocation of resources and consideration of the characteristics of the students served by schools could help reduce inequalities.

Thirdly, the analyses clearly revealed that the shortage of teachers had a negative impact at all levels. Results are better when the STR is lower, in both primary and lower secondary schools. In addition, the shortage of teachers is reflected in the widespread adoption of mixed-age classes, the fact that the majority of head teachers also have teaching responsibilities, and the use of volunteers, which has a negative impact on results. Progress has been made in recent years: class size has dropped from 44.9 students in 2014 to 41.9 in 2021 in primary school, and the STR in lower secondary school has fallen from 52.2 in 2015 to 44.4 in 2021. These efforts must continue and, ideally, accelerate. Achieving a ratio of 35 students per teacher at the primary level
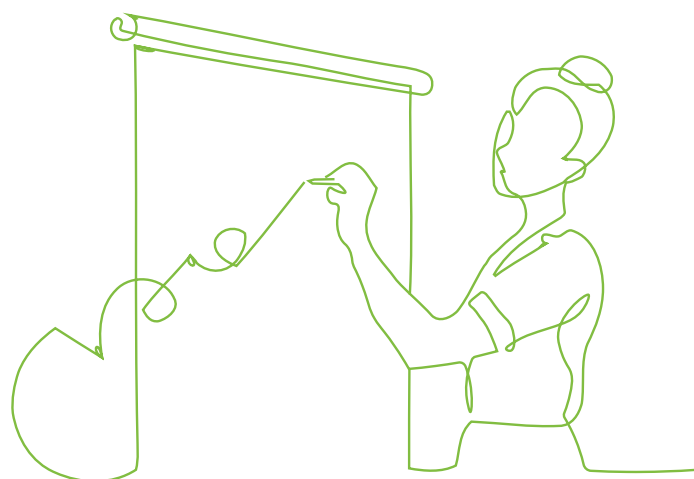
instead of the initial target of 40 students by 2030 would cost an additional XOF 4.2 billion[10] per year, but would increase the promotion rate by about 3.2 percentage points. Investments in additional lower secondary school teachers appear to be less beneficial, however, because of the weaker relationship between STR and performance at that level.

Fourthly, teacher recruitment and the training policy needs to be revised. Togo's goal is to recruit 100 per cent of teachers trained to baccalaureate level or higher at the primary school level. However, the analyses do not indicate that trained teachers or teachers with higher academic standing are more successful than others. This is somewhat troubling, given the significant investments made in teacher training and the difficulties of recruiting at the baccalaureate level, especially among women. It is difficult to understand the reasons for the lack of effectiveness of training programmes in the analyses. It is possible that training is not very effective or that teachers lack the motivation to implement what they have learned. The next stages in our research should help answer these questions.

Fifthly, investments in school inputs and infrastructure appear to have a limited impact on educational outcomes, with the exception of textbooks. As a result, improving infrastructure by building more schools with physical premises or increasing seating capacity, while important for student comfort, is probably not the most cost-effective way to improve educational outcomes. Building more latrines, however, could promote gender equality. Investments in textbooks could be justified, especially if costs are kept in check. Providing one French and mathematics textbook per student would cost about XOF 1 billion and could increase the promotion rate by 0.9 percentage points. At the lower secondary level, the impact of purchasing a French and mathematics textbook is even greater (a 4 percentage point increase in the promotion rate), but the cost is much higher (about XOF 5 billion), since secondary school textbooks are seven times more expensive than those for primary school. Better control of secondary school textbook prices would improve access to textbooks at a lower cost.

Sixthly, the education system appears to have handled the closure of schools during the COVID-19 pandemic in March 2020 well, but the consequences of this closure need to be monitored over time. The dropout rate does not appear to have increased and the repetition rate has decreased. However, we do not have data on student learning, and school closures may have an indirect impact on students who are likely to drop out. This is especially true since some students who should have repeated a year have moved up a class. Remedial classes for struggling students could solve some of these difficulties. Finally, it is important to monitor the number of new first-year enrolments in future years to see if these numbers catch up to the average and, if necessary, conduct outreach campaigns to ensure that enrolment does not decline.

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[10] Cost estimates were made using the Ministry's cost model.

7. Conclusion

Conclusion

The first stage of the DMS research in Togo analysed performance factors in the education system using data from EMIS and assessments. Econometric modelling has revealed many education policy avenues that can improve school performance. Quantifying the relationships between school inputs and performance variables, for example, helps guide MEPSTA budget allocations. We note the excellent quality of the administrative data, which made it possible to carry out thorough and reliable analyses.

However, it is also important to note the limitations of these analyses. **Firstly**, although the research team took great care to account for contextual factors, in particular through the inclusion of school fixed effects, **biases may remain and estimated relationships may be influenced by factors not captured in the models**.

Secondly, the analysis lacks elements that could explain the observed phenomena, which limits the ability to use these results to guide education policy. For example, girls do better when taught by women, but it is impossible to say whether this is due to different pedagogical and behavioural practices among female teachers or because girls identify more readily with female teachers and thus do better in school. In the first case, it is conceivable that girls' academic achievement could be improved by changing teachers' practices, while in the second case only the recruitment of more women could have a positive impact on girls' performance. Finally, only a small portion of the variance in school performance is explained by the models. Indeed, many parameters related to pedagogical practices or school management are not captured by the data, even though they can have an important influence on school performance.

The next stages in the DMS research in Togo will aim to address some of the limitations of the administrative data analysis. For example, additional quantitative and qualitative data collection in positive deviant schools (i.e. schools that are doing much better than the models predict) and control schools is intended to highlight behaviours and practices that are not captured in the current models but that explain student outcomes. In addition, analysis of these data should provide insight into the underlying reasons for some of the observed effects.
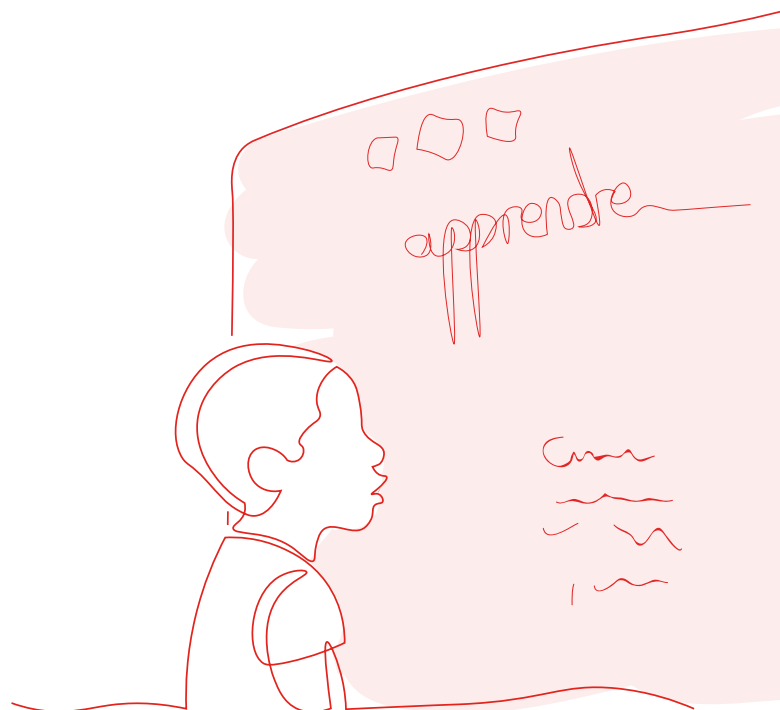
8. Annexes

Annex A: Econometric models

Table 2: Factors associated with student performance in primary school

	(1) Promotion rate	(2) Repetition rate	(3) Dropout rate	(4) Average on CEPD	(5) CEPD admission rate
Student characteristics					
Girls	-1.598***	0.153	1.277***	-0.372***	-4.822***
Average age of students	-0.418***	-0.0659**	0.432***	0.0204**	0.373***
Baseline: Farmers					
Livestock farmers	0.0660	-0.540**	0.352	0.204**	2.731**
Artisans	0.736	0.212	-0.939	0.0962	0.319
Workers	-1.518**	-0.259	2.269***	0.369***	4.454***
Shopkeepers	-0.530	-0.242	0.915	0.155*	0.564
Civil servants	1.972***	-1.108***	-0.458	0.789***	7.528***
Other occupation	-1.290*	-0.584*	2.205***	0.189*	2.521*
Distance (km)	0.0410	0.00570	-0.166	-0.0779***	-1.081***
Distance (km and girls)	-0.335***	-0.0216	0.352**	-0.0313	-0.452
Percentage of repeaters	0.0109***	0.167***	-0.229***	0.00902***	0.163***
Teacher characteristics					
Female teacher	-1.372***	0.405***	0.972***	-0.0891*	-1.119
Female student and female teacher	2.997***	-0.560***	-2.325***	0.131**	1.312
Age of teacher	0.00265	0.00859**	-0.0114	-0.00880***	-0.0958***
Teacher experience	-0.0215**	-0.000125	0.0217**	0.00184	0.0167
Baseline: None or CAM	0.04	0.1	0	1	389,320
CEAP	0.276	-0.0634	-0.263	-0.107*	-1.232
Vocational Diploma	-0.0364	0.0589	-0.0883	-0.0496	-0.518
CFENI	0.161	-0.0938	0.0701	0.137***	1.012***
BAC or higher	0.161	-0.00847	-0.222*	-0.0362	-0.434
Head teacher	-0.472***	0.0800	0.308**	-0.0238	0.552
Volunteer	-0.474***	0.0336	0.379**	-0.0615	-0.834
Class characteristics					
Class size	-0.989***	0.0755***	1.014***	-0.0195***	0.249
Class size squared	0.00439***	-0.000380***	-0.00455***	0.000104***	0.00145***
Multilevel	-1.578***	0.292***	1.510***	-0.0776***	-1.522***
Number of textbooks per student	1.074***	0.0673**	-1.229***	0.0155	0.362
Head teacher characteristics					
Female head teacher	0.00395	-0.0373	-0.0260	-0.0955**	-0.980
Female student and female head teacher	0.878***	-0.207	-0.767**	0.136***	1.570**
Age of head teacher	-0.0475***	0.00230	0.0518***	0.00156	0.0302
Head teacher experience	-0.0153	0.0175***	-0.00782	-0.00745***	-0.0797**

	(1) Promotion rate	(2) Repetition rate	(3) Dropout rate	(4) Average on CEPD	(5) CEPD admission rate
Vocational Diploma/CAP-CFENI	2.131***	-1.281***	-1.325***	0.151***	1.363**
BAC or higher	0.160	0.0110	-0.125	0.0299	0.508
School characteristics					
Actions taken by the parent-teacher association/ public primary school management board	0.0742***	-0.0298***	-0.0622***	-0.00320	0.00480
Number of inspections in the previous year	-0.0376	-0.00247	0.0136	-0.00617	-000997
Percentage of physical premises	0.00901***	0.00371***	-0.0138***	0.00113*	0.00664
Number of seats per student	1.629***	0.994***	-2.518***	-0.107*	-2.019**
Food supplement	0.683**	-0.208	-0.517	0.0758	0.0403
Latrines	-0.189	-0.211**	0.364	-0.0127	-0.262
Latrines and girls	0.404**	-0.0542	-0.484**	-0.0388	-0.119
Other checks					
Year = 15	1.215***	-1.652***	-0.509***		
Year = 16	1.066***	-1.656***	-0.0866	-0.0244	-0.248
Year = 17	1.391***	-1.589***	0.0207	0.260***	3.787***
Year = 18	0.460**	-0.821***	0.653***	0.372***	6.283***
Year = 19	1.459***	-2.083***	0.922***	0.395***	7.314***
Year = 20	4.202***	-3.435***	-0.182	1.642***	17.36***
CP2	8.796***	11.08***	-18.89***		
CE1	3.745***	1.478***	-4.519***		
CE2	5.973***	12.51***	-17.13***		
CM1	-7.688***	3.233***	5.543***		
CM2	-13.61***	14.34***			
Constant	111.8***	-0.358	-13.71***	11.38***	69.91***
Comments	**334,775**	**333,361**	**285,148**	**48,533**	**48,533**
R squared	**0.216**	**0.353**	**0.289**	**0.511**	**0.451**

Note: Robust standard errors in parentheses *** p<0.01; ** p<0.05; * p<0.1. CAP: Certificat d'aptitude pédagogique (vocational diploma)
CAM: Certificat d'aptitude au monitorat (Certificate of Instructor's Training)
CEAP: Certificat élémentaire d'aptitude professionnel (Elementary Education Teaching Qualification)
CFENI: Certificat de fin d'études normales des instituteurs (Pre-Primary and Primary School
Teacher Certificate)
CEPD: Primary School Completion Certificate.
CE1: Third year of primary school.
CE2: Fourth year of primary school.
CFENI: Pre-Primary and Primary School Teacher Certificate.
CP1: First year of primary school.
CP2: Second year of primary school.CM1: Fifth year of primary school.
CM2: Sixth (final) year of primary school.
BAC: Baccalaureate.
PEG: General school teacher.
5e: Second year of lower secondary school.
4e: Third year of lower secondary school.
3e: Fourth (final) year of lower secondary school.

Table 3: Factors associated with student performance in lower secondary school

	(1) Promotion rate	(2) Repetition rate	(3) Dropout rate	(4) Average on BEPC	(5) BEPC admission rate
Student characteristics					
Girls	-6.120***	1.340***	4.776***	-0.736***	-11.84***
Average age of students	-0.785***	-0.332**	1.418***	-0.121***	-1.565***
Baseline: Farmers					
Livestock farmers	-5.981**	3.401*	1.676	-0.631**	-8.005*
Artisans	3.236**	-0.775	-2.070	-0.0173	-0.296
Workers	-0.611	3.133**	-2.196	-0.357*	-5.563
Shopkeepers	1.608	-2.328**	1.050	0.227	2.931
Civil servants	6.498***	-3.523***	-2.650*	0.314**	5.567**
Other occupation	0.941	-2.420**	2.033	-0.335**	-4.446
Distance (km)	-0.509**	0.223	0.174	-0.00477	-0.00612
Distance (km and girls)	-0.776**	0.306	0.534*	0.00379	-0.372
Percentage of repeaters	-0.103***	0.128***	-0.0739***	0.00253***	0.0908***
Teacher characteristics					
Female teacher	-7.367***	0.674	8.986***	0.450*	3.178
Female student and female teacher	15.48***	-4.515***	-11.70***	0.434**	11.61***
Age of teacher	-0.189**	-0.0209	0.184**	-0.0177**	-0.230
Teacher experience	0.188**	0.00436	-0.200**	0.0116	0.197
Baseline: None					
CFNES	-1.534	-1.546	4.822***	-0.252	-3.529
PEG	-4.760*	3.451*	3.062	0.183	1.870
General School Vocational Diploma	0.754	0.716	-1.059	0.0467	2.262
Vocational Diploma/ CEAP second degree	-0.372	0.486	-0.471	-0.173	-3.087
BAC or higher	0.397	1.278*	-1.961**	-0.0443	-2.276
Volunteer	-0.935	-1.250	1.581	-0.240*	-6.066**
Number of textbooks per student	2.573***	-1.044***	-1.391***	0.0618***	1.596***
Number of students per teacher	-0.177***	0.0134	0.164***	-0.00579***	-0.105***
Number of students per teacher squared	0.000213***	-2.17e-05	-0.000191***	7.98e-06***	0.000148***

	(1)	(2)	(3)	(4)	(5)
	Promotion rate	Repetition rate	Dropout rate	Average on CEPD	BEPC admission rate
Head teacher characteristics					
Head teacher characteristics	-0.989***	0.0755***	1.014***	-0.0195***	0.249
Female head teacher	-0.495	-0.298	0.523	-0.0480	-0.499
Female student and female head teacher	0.552	0.356	0.144	-0.0281	-1.458
Age of head teacher	0.0298	-0.0437*	0.00939	-0.00293	-0.0924
Head teacher experience	-0.0882**	0.0636**	0.0221	-0.00389	0.0120
Baseline: None or other					
PEG	0.226	-0.227	0.0179	-0.113	-2.265*
General School Vocational Diploma	-0.456	-0.177	0.928*	-0.0607	-1.129
Vocational Diploma/CEAP second degree	-1.867	0.630	1.988*	-0.165	-0.190
BAC or higher	2.882***	-0.441	-2.501***	0.123*	1.243
School characteristics					
Actions taken by the parent-teacher association/ public primary school management board	0.156	0.0509	0.141***	0.00172	0.0437
Number of inspections in the previous year	0.0661	-0.107*	0.0674	0.00774	0.175
Percentage of physical premises	-0.0102	-0.00617	0.0146**	0.000906	0.0291**
Number of seats per student	2.877**	0.0974	-2.753**	0.106	3.287*
Food supplement	-1.924***	0.814**	0.987**	-0.105**	-1.358
Latrines	1.083**	-0.316	-0.787*	0.0824*	1.367*
Latrines and girls	0.156	0.0509	0.141***	0.00172	0.0437
Other checks					
Year = 15	-14.52***	-7.363***	21.69***		
Year = 16	-12.39***	-7.929***	19.85***	0.317***	2.100***
Year = 17	-15.03***	-7.268***	22.21***	0.258***	1.866**
Year = 18	-18.57***	-6.142***	24.38***	-0.261***	-8.965***
Year = 19	-14.95***	-7.548***	22.49***	0.289***	0.964
Year = 20	-8.406***	-15.34***	23.66***	0.627***	3.065***
Year 2 of lower secondary school	7.461***	-2.891***	-4.955***		
Year 3 of lower secondary school	-1.922***	6.569***	-4.905***		
Year 4 of lower secondary school	-2.223***	7.955***			
Constant	104.9***	31.36***	-38.17***	12.98***	102.3***
Comments	**35,272**	**35,225**	**27,963**	**7.307**	**7.307**
R squared	**0.376**	**0.361**	**0.339**	**0.644**	**0.596**

Note: Robust standard errors in parentheses *** p<0.01; ** p<0.05; * p<0.1.
CAM: Certificate of Instructor's Training.
CAP: Vocational Diploma.
CEAP: Elementary Education Teaching Qualification.
CEG: General school.
BAC: Baccalaureate.
PEG: General school teacher.
5e: Second year of lower secondary school.
4e: Third year of lower secondary school.
3e: Fourth (final) year of lower secondary school.

Annex B: Construction of the database

Collection of data from the EMIS database

Each year, MEPSTA produces statistical data for the management of the education system. The process is launched by an official note signed by the Minister of Education. This note is sent to the *directions régionales de l'éducation* (Regional Education Directorates – [DREs]) with the timeline of the entire process. The data collection forms are printed for the number of schools in each stage and sent to the DREs before or two weeks after the start of the school year. The DREs in turn forward them to the inspectorates according to the agreed timetable. The inspectorates then distribute them to head teachers and conduct training sessions on how to complete them. Once the forms have been completed, the head teachers send them back to the relevant inspectorate, and the person in charge of statistics in each inspectorate checks and verifies the consistency of the data. In the meantime, while head teachers are filling out the questionnaires, the Planning Directorate is organizing regional workshops to redeploy the database.

During these workshops, the new data entry operators and statistics officers are trained and the databases are installed on the devices of each inspectorate for the current year's data entry. Once the questionnaires have been completed and the consistency of the information has been verified, each inspectorate enters the data on the StatEduc 2 platform, either locally or through a network, depending on the technological structure of each inspectorate. This input is supervised and supported by DRE officials and the central administrator

of the Directorate of Education Planning and Evaluation (DPEE), remotely or on site, as appropriate. At the end of the data entry process, a second consistency check is carried out by the data entry and statistics officers through the data entry application, to correct any errors and inconsistencies. The data are then exported and sent to the DRE and the DPEE for compilation.

The next stage is data validation. Regional workshops are held at the end of the data entry process and focus on data processing and validation. These workshops bring together, for each region, the relevant DRE, the chief inspectors, the inspectors in charge of statistics, the heads of planning divisions, the heads of statistical sections and the education directorates' IT specialists. The data from each inspection are presented, processed and validated, and then the data are compiled for each region. At the end of these regional workshops, the regional databases are compiled into the national database after a final processing. Once the national database is available, a technical workshop bringing together statisticians, computer scientists, economists and planners from all MEPSTA's central and regional directorates and a statistician from the National Institute of Statistics is organized to produce the management tools, namely the national directory, the indicator dashboard, the indicator analysis report and the school dashboard. Finally, a national workshop to present the statistics of the school year (analysis report) is organized for all actors in the Togolese education system (policymakers, planners, civil society and technical and financial partners). The management tools are distributed in paper and digital formats.

Information collected in the EMIS database

This is a relational database containing longitudinal data for the past eight years (2013–2021). It records:

School identification and location information	Information on the socioeconomic life of the place where the school is located, especially in rural areas: access to the village, its water and electricity supply, socio-cultural activities, etc.
Data on the context of the school, its accessibility in all seasons, the availability of water, electricity and functional handwashing facilities, sports and sanitary facilities, its physical environment, etc.	The nature and condition of the school infrastructure (premises) and its funding source
Information on shared and individual student equipment for the classrooms used	The number of shared teaching materials, official teaching books (guides) available to teachers and official textbooks for students
Financial data, such as grant amounts received by the institution by donor, parallel contributions from parents, especially at the secondary level, tuition fees and expenditure by funding source	Information on the school's staff, both administrative and teaching, i.e. name and surname, gender, date of birth, marital status, highest academic degree, professional degree (if any), position, corps, class or subject taught, etc.

Distribution of students by age, gender, teaching group by level, by occupation of the head of household, and by enrolment area	Information on students with disabilities, broken down by type of disability
Distribution of students who dropped out of school in the previous year by level and gender, by reason for dropping out	The results of the various end-of-level and end-of stage examinations (CEPD, BEPC, BAC 1 and BAC 2)
Information on the availability of technological infrastructure, material and equipment within the school (availability of computer rooms, computer network, Internet connection, computer and technological equipment, as well as their quantity and condition)	

Examination database

Examination data (CEPD, BEPC and baccalaureate) from each school are combined with the EMIS database as part of the DMS initiative on dashboard creation. Information such as the candidate's table number, gender, age, all grades achieved, home institution, written examination centre and prefecture is extracted from the examination databases, compiled and imported into the EMIS database to be linked to the administrative data collected.

Potential data limitations and imprecision

Despite a well-structured and harmonized data collection process and quality assurance measures, it should be noted that the data have some inaccuracies, as the collection is based primarily on self-reporting by head teachers. As a result, some data still need to be verified or confirmed through household surveys or studies. This is the case, for example, for data on the distribution of students by age according to education levels and the distribution of students by gender according to the occupation of the head of household, which may be inaccurate if the head teacher does not know the students' parents well. The EMIS has limitations in that students in the non-formal education sector as well as those outside the school system are not covered. At the secondary level, data on technical education are not collected and integrated into the database because they are managed by another MEPSTA structure. However, despite these limitations, it is worth noting the very good quality of the data, with very few missing values or outliers found and excellent application of unique facility codes over time.

Data merger and creation of the analysis database

The EMIS database contains information about 8,502 primary schools, including 5,305 public schools and 175 community schools, which represented 67.9 per cent of total enrolment in 2020/21. The data span the school years 2013/14 through 2020/21, and unique codes link the information to the corresponding institution over time. At the lower secondary level, the database contains information on 2,384 schools, including 885 public and 152 community schools, which represented 73.6 per cent of the total 2020/21 enrolment. Because the report is intended to highlight public policies that can be implemented by MEPSTA, only public and community school data are included in the analysis.

At the primary level, student information is collected at the teaching group (class) level, and teacher information provides details of the level taught. It is therefore possible to link teacher information to information on the level taught, but not in terms of teaching groups. In addition, enrolment data are systematically disaggregated by gender, allowing for separate studies of girls and boys. To keep the level of analysis as low as possible, we linked the EMIS database tables to construct a database for primary schools where the unit of observation is a gender-disaggregated instructional level in a given school for a school year.[11] In most cases,[12] there is only one teaching group per level, but when there is more than one teaching group per level in a school, the data for the groups are merged. The final database for community and public schools contains 389,686 observations.

At the lower secondary level, it is not possible to link teacher information with a particular section, so teacher data are considered at the school level. The final database for community and public schools contains 45,629 observations.

Annex B: Development of performance variables

Promotion, repetition and dropout rates

The promotion rate can be calculated by tracking a cohort of students (broken down by gender) over a number of school years. Accordingly, students who are at a pedagogical level t in year N should be at pedagogical level t+1 in year N+1. The promotion rate can thus be estimated by comparing the enrolment of two consecutive school years for two consecutive pedagogical levels for the same school. Students repeating a class in year N+1 are subtracted from the enrolment because they are not part of the cohort of students who have just moved up.

This method of estimating the promotion rate gives satisfactory results, but may be biased if there are errors in the number of students or the number of students repeating a year. Moreover, it is impossible to know the number of new students enrolled in the school or whether students who leave the school drop out or transfer. For this reason, the dropout rate should be understood as the number of students who leave a school but do not inevitably fall out of the school system. In addition, the promotion rate can

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[11] For example: characteristics of girls in CE1 in school X for the 2015/16 school year.
[12] A total of 98.2 per cent of pedagogical levels have only one teaching group.

be higher than 100 per cent if students arrive from other institutions. We assume that school changes are relatively rare and that changes in promotion and dropout rates capture differences in performance across schools.

It is not possible to estimate the promotion rate at the end of elementary school (CM2) and at the end of the fourth year of lower secondary school, because there is no t+1 level available. For these two levels, the CEPD and BEPC examination admission rates were used to estimate promotion rates.[13]

At the primary level, the promotion rate can be estimated for 399,965 observations out of the 416,048 observations available for all years.[14] In 24 cases, the promotion rate is less than 0. These observations have been removed from the analysis, as they are likely to be a typing or reporting error.[15] In 17.6 per cent of cases, the estimated promotion rate is greater than 100 per cent. As noted above, rates above 100 per cent are possible if new students join the school. Very high promotion rates can, however, also be due to errors in the database. To avoid outliers having an impact on the econometric models, all values above 150 per cent were removed from the database (2.5 per cent of observations).[16] At the lower secondary level, the promotion rate could be estimated for 45,964 observations out of 49,338 available. In 50 cases, the promotion rate is less than 0 per cent.

For 5.5 per cent of the observations, this rate is higher than 100 per cent, and for 0.7 per cent of the observations it is higher than 150 per cent. As with primary schools, the analysis is limited to observations with promotion rates between 0 and 150 per cent.

The repetition rate is calculated using information on the number of students repeating in the EMIS database, while the dropout rate is estimated as the difference between 100 per cent and the promotion rate plus the repetition rate. As a result, the sum of the promotion, repetition and dropout rates equals 100 per cent.

Results of the CEPD and BEPC exams

The school average of scores out of 20 on the CEPD and BEPC was calculated for girls and boys separately and related to the class characteristics for CM2 and the fourth year of primary school. Examination results are available from the 2014/15 school year through the 2019/20 school year. The CEPD average is available for 55,738 of 58,380 CM2 classes: it was 11.1 points with a standard deviation of 2 in 2019/20. At the lower secondary school level, the mean is known for 9,341 of 10,542 fourth-year classes: it was 10.1 points with a standard deviation of 1.2 in 2019/20.

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[13] CEPD and BEPC examination results are not available for the 2013/14 year, and therefore the promotion rates for CM2 and the fourth year of lower secondary school cannot be calculated for that year.

[14] Due to the design of the analysis, promotion rates for the last available year (2020/21) cannot be estimated.

[15] This occurs when the number of students repeating in a class is greater than the class size, which is by definition impossible.

[16] The results change very little when all observations are retained or when the analysis is restricted to observations with a promotion rate between 0 and 100 per cent.

Descriptive statistics at the primary level

Variables	Average	Standard deviation (SD)	Minimum	Maximum	Comments
Performance variables					
Promotion rate	78.07	26.82	0	150	389,686
Repetition rate	8.47	15.06	0	1,100	387,944
Dropout rate	13.38	28.84	-1,000	100	332,658
Average on CEPD	11.13	2.21	0	18.28	55,738
CEPD percentage pass rate	69.05	28.01	0	100	55,738
Student variables					
Girls	0.48	0.5	0	1	389,686
Age of student	8.66	2.13	5	17	389,327
Parents' occupation					
Farmers	0.7	0.3	0	1	389,320
Livestock farmers	0.04	0.1	0	1	389,320
Artisans	0.07	0.11	0	1	389,320
Workers	0.04	0.09	0	1	389,320
Shopkeepers	0.08	0.12	0	1	389,320
Civil servants	0.04	0.07	0	1	389,320
Other occupation	0.04	0.08	0	1	389,320
Distance to school (km)	1.18	0.7	0.5	4	389,504
Academic variables					
Female teacher	0.16	0.33	0	1	389,452
Age of teacher	40.59	9.32	20	60	388,710
Teacher experience	10.72	8.15	0	30	380,536
Teacher's professional qualification					
CAM or none	0.14	0.36	0	1	389,166
CEAP	0.09	0.3	0	1	389,166
Vocational Diploma	0.77	0.43	0	1	389,166
Teacher: CFENI	0.15	0.34	0	1	389,166
Teacher: BAC or higher	0.42	0.49	0	1	389,166
Head teacher	0.2	0.41	0	1	389,166
Volunteer	0.24	0.44	0	1	389,166
Class size	44.26	17.78	0	207	389,438
Multilevel	0.22	0.48	0	1	389,399
Number of textbooks per student	1.25	0.78	0	3	389,652
Levels					
CP1	0.22	0.38	0	1	389,686
CP2	0.19	0.38	0	1	389,686
CE1	0.17	0.38	0	1	389,686
CE2	0.17	0.37	0	1	389,686
CM1	0.15	0.38	0	1	389,686
CM2	0.11	0.35	0	1	389,686

Variables	Average	Standard deviation (SD)	Minimum	Maximum	Comments
School variables					
Age of head teacher	49.05	6.9	20	60	382,031
Head teacher experience	20.13	6.85	0	30	380,099
Head teacher: BAC or higher	0.44	0.49	0	1	382,515
Number of actions taken by the parent-teacher association/public primary school management board	3.8	2.9	0	20	356,958
Number of inspections last year	2.48	2	0	10	389,686
Percentage of physical premises	64.87	41.05	0	100	389,624
Number of seats per student	0.76	0.26	0	1	388,960
Food supplement	0.03	0.18	0	1	382,510
Presence of latrines	0.58	0.5	0	1	386,760
Year					
Year	17.1	1.96	14	20	389,686
Other contextual variables					
Rural	0.77	0.38	0	1	389,686
Regions					
Lomé	0.08	0.22	0	1	389,686
Maritime	0.2	0.4	0	1	389,686
Plateaux	0.27	0.45	0	1	389,686
Central	0.13	0.35	0	1	389,686
Kara	0.14	0.37	0	1	389,686
Savanes	0.17	0.36	0	1	389,686
Community school	0.01	0.11	0	1	389,686

Descriptive statistics at the lower secondary level

Variables	Average	Standard deviation (SD)	Minimum	Maximum	Comments
Performance variable					
Promotion rate	66,761	22,663	0	150	45,629
Repetition rate	21,867	17,508	0	305	45,552
Dropout rate	11,212	21,532	-200	100	36,284
BEPC average	10,009	1,294	0	17.59	9,343
BEPC percentage pass rate	60,884	22,515	0	100	9,343

Variables	Average	Standard deviation (SD)	Minimum	Maximum	Comments
Student variables					
Girls	0.425	0.5	0	1	45,629
Age of student	14,278	1,495	10	21.5	45,607
Parents' occupation					
Farmers	0.505	0.286	0	1	45,597
Livestock farmers	0.033	0.057	0	0.8	45,597
Artisans	0.107	0.102	0	1	45,597
Workers	0.059	0.068	0	1	45,597
Shopkeepers	0.104	0.096	0	1	45,597
Civil servants	0.11	0.101	0	1	45,597
Other occupation	0.082	0.093	0	1	45,597
Distance to school (km)	2.054	0.764	1	5	45,593
Academic variables					
Levels					
Year 1 of lower secondary school	0.349	0.443	0	1	45,629
Year 2 of lower secondary school	0.26	0.442	0	1	45,629
Year 3 of lower secondary school	0.237	0.439	0	1	45,629
Year 4 of lower secondary school	0.154	0.404	0	1	45,629
School variables					
Percentage of female teachers	0.088	0.093	0	1	45,563
Average age of teachers	39,532	4,589	23	56.5	45,558
Average teacher experience	10,184	3,867	0	27.5	45,072
Professional degree for teachers					
None or other	0.378	0.255	0	1	45,563
CFNES	0.066	0.109	0	0.783	45,563
PEG	0.049	0.073	0	1	45,563
General School Vocational Diploma	0.396	0.222	0	1	45,563
Vocational Diploma/ CEAP second degree	0.111	0.149	0	1	45,563
Teacher: BAC or higher	0.347	0.244	0	1	45,563
Percentage of volunteers	0.394	0.242	0	1	45,563
STR	51.54	20,696	4,667	831.5	45,563
Number of textbooks per student	0.975	0.869	0	3	45,626
Female head teacher	0.064	0.234	0	6	45,627
Age of head teacher	51,965	8,796	20	60	39,356
Head teacher experience	22,353	8.16	0	30	38.945

Variables	Average	Standard deviation (SD)	Minimum	Maximum	Comments
Head teacher professional qualification					
None or CAM	0.076	0.303	0	1	39,478
Vocational Diploma	0	0.007	0	0.5	39,478
CFNES	0.069	0.237	0	1	39,478
PEG	0.15	0.32	0	1	39,478
General School Vocational Diploma	0.686	0.463	0	1	39,478
Vocational Diploma/ CEAP second degree	0.019	0.183	0	1	39,478
Head teacher: BAC or higher	0.95	0.214	0	1	39,478
Number of actions taken by the parent-teacher association/ public primary school management board last year	5,963	3,814	0	20	41,986
Number of inspections last year	2,899	2,005	0	10	45,629
Percentage of physical premises	81.76	40.48	0	100	45,461
Number of seats per student	0.877	0.146	0	1	45,297
Food supplement	0.007	0.078	0	1	44,745
Presence of latrines	0.628	0.499	0	1	45,059
Year					
Year	17,363	1,933	14	20	45,629
Other contextual variables					
Rural	0.596	0.399	0	1	45,629
Lomé	0.16	0.236	0	1	45,629
Maritime	0.193	0.422	0	1	45,629
Plateaux	0.227	0.444	0	1	45,629
Central	0.12	0.341	0	1	45,629
Kara	0.15	0.369	0	1	45,629
Savanes	0.148	0.348	0	1	45,629
Community school	0.017	0.248	0	1	45,629

Note:
CAM: Certificate of Instructor's Training.
BEPC: Lower Secondary Completion Certificate.
CAP: Vocational Diploma.
CEAP: Elementary Education Teaching Qualification.
CEG: General school.
CEPD: Primary School Completion Certificate.
CE1: Third year of primary school.
CE2: Fourth year of primary school.
CFENI: Pre-Primary and Primary School Teacher Certificate.
CP1: First year of primary school.
CP2: Second year of primary school.
CM1: Fifth year of primary school.
CM2: Sixth (final) year of primary school.
BAC: Baccalaureate.
PEG: General school teacher.
6e: First year of lower secondary school.
5e: Second year of lower secondary school.
4e: Third year of lower secondary school.
3e: Fourth (final) year of lower secondary school.

9. References

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