

# CHAPTER 4

## QUALITY AND LEARNING OUTCOMES

The objectives of education systems are not limited to increasing school enrollment, but also to offering services of quality. In many countries in Africa the quality of education is becoming a major issue. Tanzania is not an exception, as the impressive expansion of the primary schooling system has raised concerns that the level of education quality may have dropped.

The concept of quality in education is complex, and can cover many realities. It can refer to the level of education resources invested in school systems, but also to what students actually learn. In this latter perspective, an education of quality would be one that ensures that students acquire the set competencies and skills.<sup>61</sup> In this context, the level of learning achievements becomes critical. It also provides interesting insight into the level of human capital being built, which is crucial for national development.<sup>62</sup>

Yet, as such, this objective is not sufficient. It needs to be combined with one related to the effective use of education resources. Indeed, it is advisable that students reach the end of the cycle (that they do not dropout) in a minimum number of years (that they do not repeat).

In this chapter, the analysis of quality will focus first on the internal quality of the system, by analyzing the levels of repetition, and the degree of efficiency lost through them. Then, the quality of teaching is reviewed, presenting different measures of learning outcomes, and highlighting school factors that could improve them.<sup>63</sup>

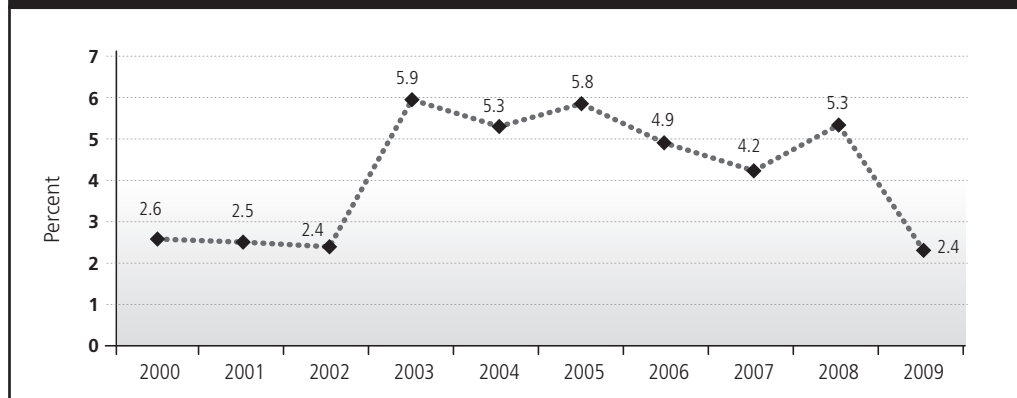
## Internal Efficiency of the Education System

Analyzing student flows within a cycle and assessing an education system's internal efficiency entails comparing the number of students who access the first year of the cycle with those who reach the final year of that same cycle in the timeframe usually imparted. Repetition and dropout affect the system's internal efficiency. In the case of repetition, because two years of schooling are required instead of one to achieve the same learning outcome; and in the case of dropout, because students do not validate their level or achieve the set learning outcomes; furthermore, early primary dropout is often associated with future illiteracy. Repetition and dropout therefore entail a waste of public resources, and a lost opportunity to improve human capital. This section will first review repetition levels, and then measure the internal efficiency of both basic and secondary education.

### ● Repetition Trends

Estimates of primary repetition levels are consolidated in Figures 4.1 and 4.2 below as well as in Annex Table 4.1. Although primary repetition is generally not allowed, a level above 5 percent prevailed until 2008, due to: (i) the implementation of the fee-free primary education policy, which encouraged children from various backgrounds to join school, including some with acute learning difficulties who had to repeat because remedial classes were not available; and (ii) the system's difficulty in responding quickly to demographic pressure, leading to the overcrowding of classrooms, negatively affecting learning outcomes and ultimately repetition.

**Figure 4.1: Primary Level Repetition Trends, 2000-09**  
*Percentage of Repeaters*

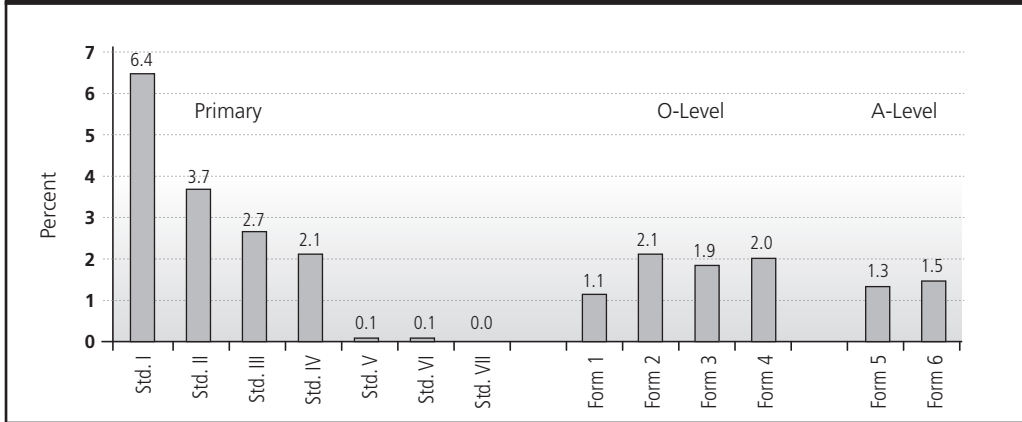


Source: BEST, various years.

Repetition proportions have however witnessed a downward trend following the adjustment of the education system, and the abolition of repetition following failure in the Standard IV examination. In 2009, repetition was back to the same level as before the implementation of the fee-free primary education policy, at 2.4 percent (See Figure 4.1).

The pattern for primary school reveals particularly high repetition levels in Standards I to IV, and insignificant levels beyond Standard IV (See Figure 4.2 below). Until 2009, Standard IV repetition was certainly linked to failure in the Standard IV exam. No longer allowing students failing the Standard IV exam the opportunity to repeat coincided in 2009 with a significant drop in repetition, from an average of 12 percent repeaters over the decade to 2.4 percent in 2009 (See Annex Table 4.1). The low level of repetition beyond Standard IV could be linked to: (i) the strict application of the primary no-repetition policy; and (ii) the possibility that the pupils with the greatest learning difficulties dropped out in earlier grades. The high level of repetition observed in Standard I (6.4 percent) could be associated with the low school preparedness of some children, that should wane as preschool attendance expands.

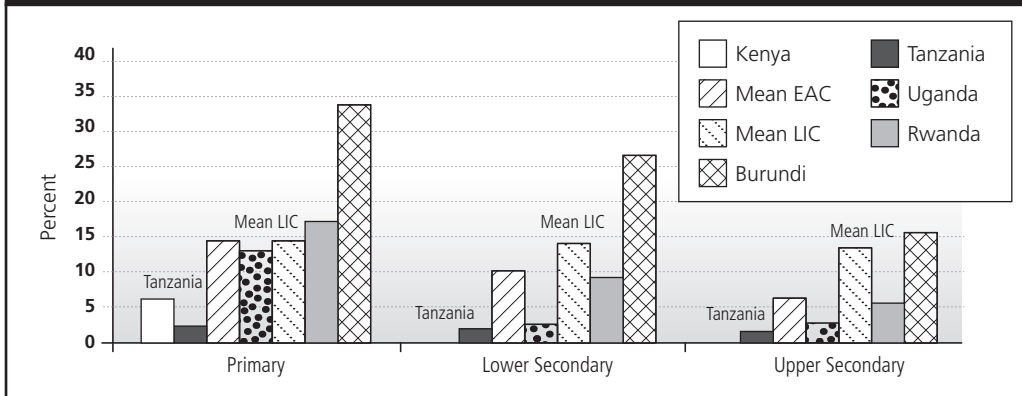
**Figure 4.2: Proportion of Primary and Secondary Repetition, by Subsector and Grade, 2009**  
*Percentage of Repeaters*



Source: EMIS database, 2009.

The data available indicate that secondary level repetition is lower still, below two percent on average. O-Level Forms 2 to 4 have slightly higher repetition than Form 1, which might be explained by exam failure. The average share of repeaters for A-Level was 1.4 percent in 2009. As such, repetition in Tanzania is among the lowest in Africa, at both primary and secondary levels (See Figure 4.3).

**Figure 4.3: Proportion of Primary and Secondary Repetition, Various African Countries, 2006 or MRY**  
*Percentage of Repeaters*



Source: BEST, 2006 for Tanzania; World Bank, 2009 for other countries.

### Internal Efficiency Index

A brief analysis of student flow patterns (repetition, dropout and retention) was provided in Chapter 2 and above. To establish the implication of the findings presented in terms of

the education system's internal efficiency, one approach is to compare the resources that the system currently requires for its annual output of primary and secondary school leavers, with the resources that it would have spent if repetition and dropout were insignificant.

Table 4.1 below provides an estimation of the global internal efficiency of the primary and secondary schooling systems, represented by the internal efficiency coefficient. Its partial indicators shed light on the magnitude of inefficiency and wastage resulting from disruptions in student flows related to dropout or repetition. The internal efficiency coefficient (IEC) is defined as the ratio between the theoretical number of student-years invested in a system with no student flow issues, and the real number of student-years invested, given current patterns of dropout and repetition.<sup>65</sup>

*The internal efficiency of primary education reached 88 percent in 2007,<sup>66</sup> meaning that 12 percent of public education resources were wasted on repetition and/or dropout. The system required an average of 7.9 years to produce one primary school leaver, compared with seven years under perfect efficiency conditions. This is a considerable improvement on 2000, when the IEC was 67 percent and 10.5 years were necessary on average for primary completion. The decrease in dropout over the period is mainly responsible for this improvement and the related efficiency gains. However, dropout still remains the main source of inefficiency, being responsible for 66 percent of resource misuse at the primary level. Despite its recent massive intake, the system has been able to cater for most its students and enable a growing number of them to complete the primary cycle in the minimum number of years.*

| <b>Table 4.1: Primary and Secondary Schooling Internal Efficiency Coefficients, 2000-09</b><br><i>Percent, and Number of Years Required to Completion</i> |             |             |             |
|---|-------------|-------------|-------------|
|   | <b>2000</b> | <b>2007</b> | <b>2009</b> |
| <b>Primary</b>  |             |             |             |
| Internal Efficiency Coefficient   | 67          | 88          | *           |
| Dropout-Related (no Repetition)   | 69          | 92          | *           |
| Repetition-Related (no Dropout)   | 97          | 96          | *           |
| Years Required to Completion  | 10.5        | 7.9         | 7.1         |
| <b>O-Level</b>  |             |             |             |
| Internal Efficiency Coefficient   | 82          | 83          | 81          |
| Dropout-Related (no Repetition)   | 83          | 85          | 82          |
| Repetition-Related (no Dropout)   | 98          | 98          | 98          |
| Years Required to Completion  | 4.9         | 4.8         | 5.0         |
| <b>A-Level</b>  |             |             |             |
| Internal Efficiency Coefficient   | —           | 83 **       | 72          |
| Dropout-Related (no Repetition)   | —           | 84          | 73          |
| Repetition-Related (no Dropout)   | —           | 99 **       | 99          |
| Years Required to Completion  | —           | 2.4         | 2.8         |

Source: BEST, various years.

Note: \* Not provided as 2009 primary schooling patterns were highly affected by the multicohort phenomenon, which tends to underestimate dropout; \*\* Because 2007 A-level repetition data were not available, the proportion observed in 2009 was assumed to have remained constant over the period. The change in the A-Level IEC is therefore only related to the rise in dropout.

*Internal efficiency at O-Level is lower than in primary, with an internal efficiency coefficient of 81 percent in 2009, implying that 19 percent of resources are currently wasted on repetition and/or dropout. Almost five years were required on average to produce a lower secondary school leaver (instead of the four years theoretically needed). Inefficiencies resulting from repetition were barely two percent; the major issue was dropout-related, leading to 18 percent of resources being wasted, and accounting for 95 percent of inefficiency. All of this has been constant since 2000.*

*At A-Level, inefficiencies tend to be higher. With an IEC of 72 percent in 2009, most of the resource wastage was attributable to dropout; the repetition-related index has been constant, at 99 percent.*

As such, Tanzania's education system is comparatively efficient at both primary and O-level, and its A-Level efficiency is in line with the African low-income countries' average (See Table 4.2).

**Table 4.2: Primary and Secondary Schooling Internal Efficiency Coefficients, Various African LICs, by Cycle and Level, 2009 or MRY**  
*Percent*

|                       | Primary   | Lower Secondary (O-Level) | Upper Secondary (A-Level) |
|-----------------------|-----------|---------------------------|---------------------------|
| Benin                 | —         | 64                        | 78                        |
| Burkina Faso          | 69        | 59                        | 64                        |
| Gambia                | 76        | 82                        | 84                        |
| Guinea                | 73        | 77                        | 75                        |
| Guinea Bissau         | 54        | 67                        | 89                        |
| Malawi                | 76        | 66                        |                           |
| Mali                  | 72        | 78                        |                           |
| Niger                 | 79        | 22                        | 26                        |
| Rwanda                | 39        | 82                        | 91                        |
| <b>Tanzania</b>       | <b>88</b> | <b>81</b>                 | <b>72</b>                 |
| African LICs' Average | 67        | 66                        | 72                        |

Source: Table 4.1 for Tanzania; Pôle de Dakar-UNESCO/BREDA for other countries.

In the current context of resource constraints, efforts are nevertheless necessary to reduce primary and secondary level students' dropout, in order to improve these levels' overall internal efficiency and reduce related resource wastage.

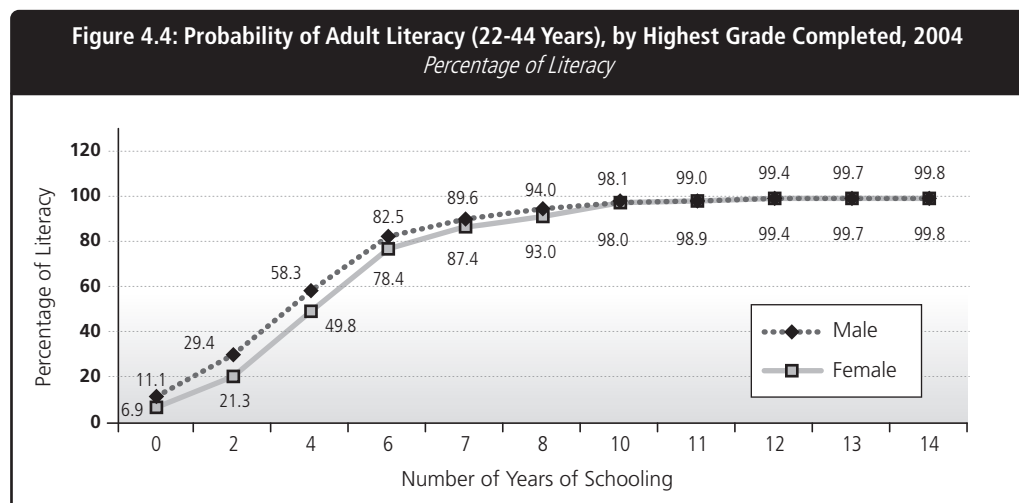
# Learning Outcomes

The assessment of learning outcomes is based on the following available sources of information: (i) adult literacy rates; (ii) the SACMEQ standardized test scores of Standard VI primary school pupils; and (iii) national examination pass rates at primary and secondary levels, as well as in vocational, technical, and higher education.

## ● Adult Literacy Levels

Literacy levels provide a first assessment of what an education system produces in terms of sustainable learning achievements, considering that one of the main objectives of primary education is to ensure students leave school fully literate. The number of years of formal schooling needed to produce sustainably literate people can therefore be used as a measure of the quality of primary education: the shorter the time needed in school, the higher the quality and efficiency of the system. A major constraint of the literacy analysis is that it is conducted on the adult population, and thus reflects the past state of the education system.

The Demographic and Health Survey (DHS, 2004) formally evaluated interviewees' literacy skills. Figure 4.4 shows the simulated results of the probability of being literate according to the highest grade completed, for adults (aged 22 to 44 years, for the purpose of this analysis), in 2004.<sup>67</sup>



Source: DHS, 2004/05, authors' computations.  
 Note: Literacy is defined as being able to read.

In 2004, 88 percent of adults were literate after having completed primary school, meaning that approximately 12 percent of adults did not acquire sufficient skills while young to remain literate during adulthood. Ten to eleven years of schooling were required for almost

100 percent of adults to attain sustainable literacy, which is unsatisfactory. Few disparities exist between male and female literacy, with respective probabilities of being literate at the end of primary of 89 percent and 87 percent. More pronounced disparities are observed between urban and rural residents however: 92 percent of urban adults were found to be literate after seven years of primary education, compared with 86 percent of rural adults. A possible explanation could lie in the fact that urban settings offer an environment that favors education in general, sustainable literacy through greater access to education opportunities, but also to reading materials and daily opportunities to use the acquired literacy skills.

In international perspective, Tanzania's output from six years of basic education is above the average for a subsample of African countries with available comparable information.<sup>68</sup> Eighty percent of Tanzania's with 6 years of schooling are literate, considerably higher than the African average, of 63 percent. However, two provisos should be remembered: (i) that literacy in African countries is generally low by international standards, putting Tanzania's performance into perspective; and (ii) Tanzanian pupils have the advantage of learning in their local language (Kiswahili), whereas in most African countries schooling is in either English, French or Portuguese. Given these reservations, the capacity of the Tanzanian education system to promote literacy certainly shows room for further improvements.

Whereas literacy rates provide general insight into the quality of education delivered in the past, the review of national examination success rates and SACMEQ scores offers a more contemporary picture of primary level learning outcomes, providing recent and complementary analyses on primary pupils' learning achievements.

### ● Primary Level Learning Achievements

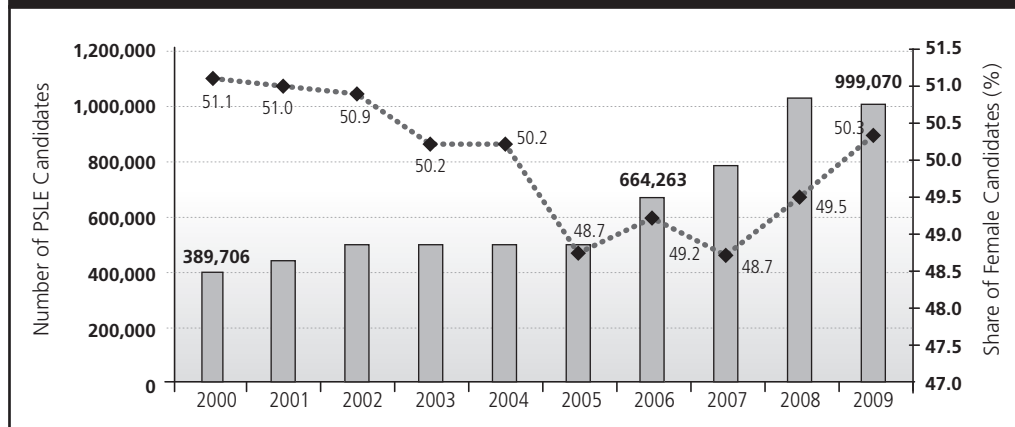
National examination results are a welcome source of data reflecting education quality issues. In Tanzania, the National Examinations Council of Tanzania (NECTA), an autonomous agency under government subsidy, is responsible for the administration of most national examinations. It also awards official diplomas in primary, secondary and nonhigher postsecondary education.<sup>69</sup>

#### **Primary School Leaving Examination (PSLE) Results**

The Primary School Leaving Examination (PSLE) sanctions the end of the primary cycle and is an internal measure of learning outcomes. Standard VII students sit five subjects: mathematics, English, social studies, sciences and Kiswahili, and pass if they achieve an average grade of 100 (out of 250).<sup>70</sup> The PSLE is also used to select students for public O-Level. This second aspect of the PSLE must be kept in mind when analyzing results, as in some cases, the number of passes obtained could in fact mirror secondary school supply.



**Figure 4.5: Number of PSLE Candidates and Share of Female Candidates, 2000-09**  
*Number, and Percent*



Source: NECTA statistical yearbooks; authors' computations.

In 2009, almost a million pupils sat the PSLE, 2.6 times more than in 2000 (See Figure 4.5). The maximum level of registration for the exam was in 2008, corresponding to the first cohort of students having benefitted from the fee-free primary education policy, implemented in 2002. The share of girls sitting the exam is on par with the share of boys, and has been stable through time, varying slightly between 49 percent and 51 percent of candidates.

**Table 4.3: PSLE Candidates and Pass Rate, by Gender, and Gender Parity Index, 2000-09**  
*Number of Candidates, Percentage who Passed and GPI*

|      | Number of Graduates | Pass Rate (%) |        |       | GPI  |
|------|---------------------|---------------|--------|-------|------|
|      |                     | Male          | Female | Total |      |
| 2000 | 85,540              | 28.7          | 15.5   | 21.9  | 0.55 |
| 2001 | 127,355             | 36.2          | 21.4   | 28.6  | 0.59 |
| 2002 | 133,663             | 34.4          | 20.1   | 27.1  | 0.58 |
| 2003 | 196,254             | 47.6          | 32.6   | 40.1  | 0.68 |
| 2004 | 243,043             | 41.8          | 55.5   | 48.7  | 1.33 |
| 2005 | 304,936             | 68.5          | 54.6   | 61.7  | 0.80 |
| 2006 | 468,279             | 76.3          | 64.5   | 70.5  | 0.85 |
| 2007 | 419,136             | 62.5          | 45.4   | 54.2  | 0.73 |
| 2008 | 536,672             | 59.7          | 45.5   | 52.7  | 0.76 |
| 2009 | 493,333             | 55.6          | 43.2   | 49.4  | 0.78 |

Source: : NECTA statistical yearbooks; authors' computations.

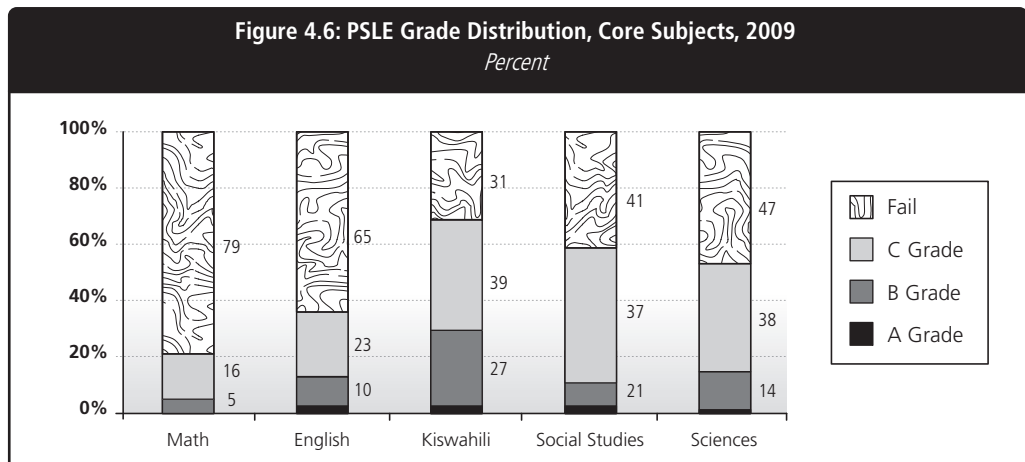
Note: Grades A, B and C are a pass. The pass rate is: Number of students who pass / Number of exam candidates.

However, barely half the Standard VII students who sat the PSLE in 2009 passed, a level both disappointing in itself, and relatively lower than the 2006 pass rate, of 70.5 percent (See Table 4.3). This drop in performance may be partly explained, as above, by the influx of students

with acute learning difficulties as a result of the fee-free primary education policy, but it could also be related to more strict selection criteria for secondary school access, following the important increase in the number of primary school leavers, from 85,550 to 493,333 over the period, without the concomitant increase in secondary school seats (See earlier Table 2.12).<sup>71</sup>

Apart from in 2004, when the female pass rate exceeded the male one, boys have outperformed girls systematically. Although the situation improved mildly over 2004-06, when the gender parity index of 0.85 was a great improvement on that of 2000, since 2007 the gender imbalance has deepened. In 2009, for every 100 male PSLE graduates, there were 78 female graduates (GPI of 0.78 - See Annex Figure 4.1).

Failure is common in all five core subjects, as shown in Figure 4.6. The low level of achievement in math and English, with respective failure rates of 79 percent and 65 percent, is of particular concern: English being the main teaching language at O-Level, the findings suggest that 65 percent of students will have learning difficulties as they start secondary school. Beyond the high proportion of failure in PSLE English, 23 percent of those that pass obtain a C grade, underlining the low level of mastery of the language among candidates.



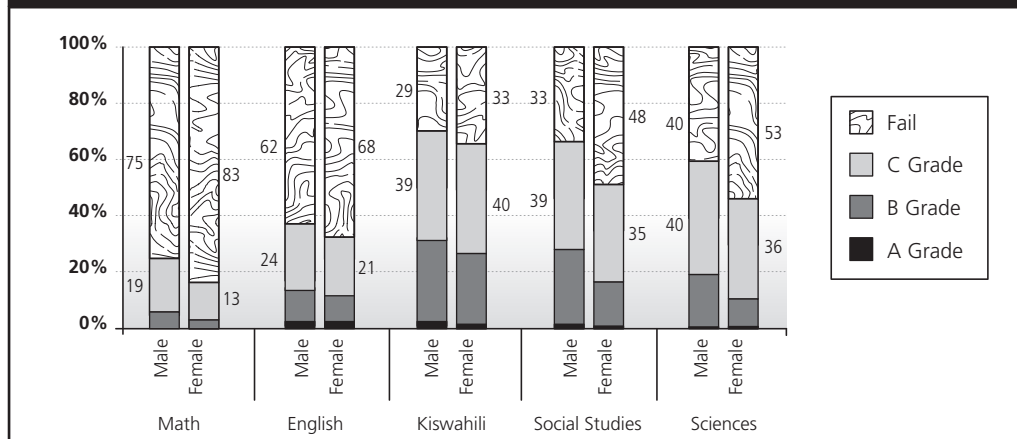
Source: NECTA statistical yearbooks; authors' computations.

Again, girls underperform boys in all subjects (See Figure 4.7 below). They are particularly behind in math: for every 100 boys who pass, only 70 girls do (See Annex Table 4.2).

Regional disparities also exist in PSLE pass rates, that vary between 32 percent in Shinyanga region to 70 percent in Dar es Salaam region. Low pass rates are also registered in Singida region (36 percent), and Dodoma, Kigoma and Tabora regions (40 percent). Important regional disparities are also worthy of note in terms of scores by subject. Annex Tables 4.3, 4.4 and 4.5 provide the distribution of English, math, and Kiswahili results.

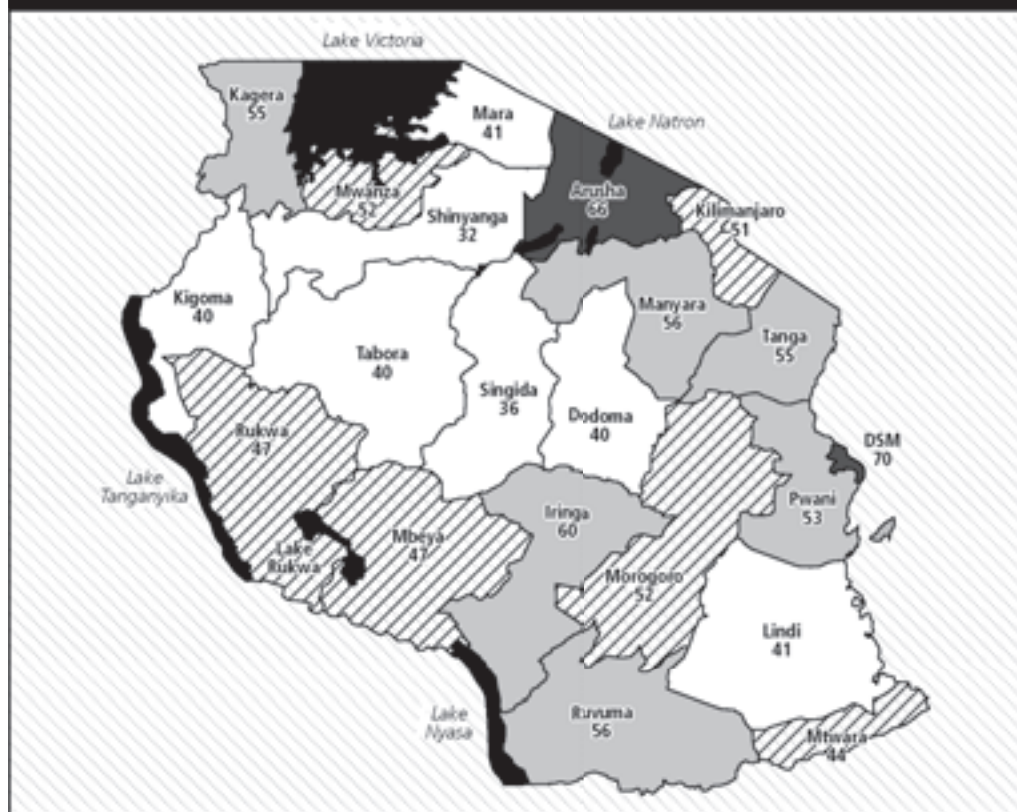
**Figure 4.7: PSLE Grade Distribution, Core Subjects, by Gender, 2009**

Percent



Source: NECTA statistical yearbooks; authors' computations.

**Map 4.1: PSLE Pass Rate, by Region, 2009**



Source: NECTA statistical yearbook; authors' computations.

Legend: White – Pass Rate ≤ 42%; Stripes – Pass Rate [43% - 52%]; Medium grey – Pass Rate [53% - 62%]; Dark grey – Pass Rate ≥ 63%.

Regional disparities and gender inequalities are issues that require special attention.

This pinpoints a crucial issue: the availability of data to monitor education quality adequately. At present, the lack of school level data prevents more in-depth analysis of primary school performance. Yet this would be valuable to identify which schools produce poor PSLE candidates, and assess why to provide them with specific relevant support. More broadly, it impedes the systemic monitoring of education quality. Reducing disparities and improving learning achievements will necessarily involve an effective decentralized education quality monitoring system.

*A note of caution:* pass rates are not ideal to assess the level of Tanzanian PSLE learning outcomes, because: (i) the difficulty of the tests may vary from year to year, undermining the validity and fairness of comparisons;<sup>72</sup> and (ii) the marking is sometimes tuned to filter candidates through to the secondary level in line with the availability of seats. Standardized assessments, such as the SACMEQ (see below), overcome this limitation.

### SACMEQ Results

Tanzania and 13 countries of the region participate in The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), that measures Standard VI pupils’ performance in reading and math.<sup>73</sup> The second round, of 2007, is of major interest, as uses the 2000 round as a benchmark to put the evolution of pupils’ achievements into perspective. The evolution of SACMEQ scores therefore provides interesting insight into how primary education quality has evolved under conditions of rapid expansion. Results of both SACMEQ surveys (2000 and 2007) are presented below.

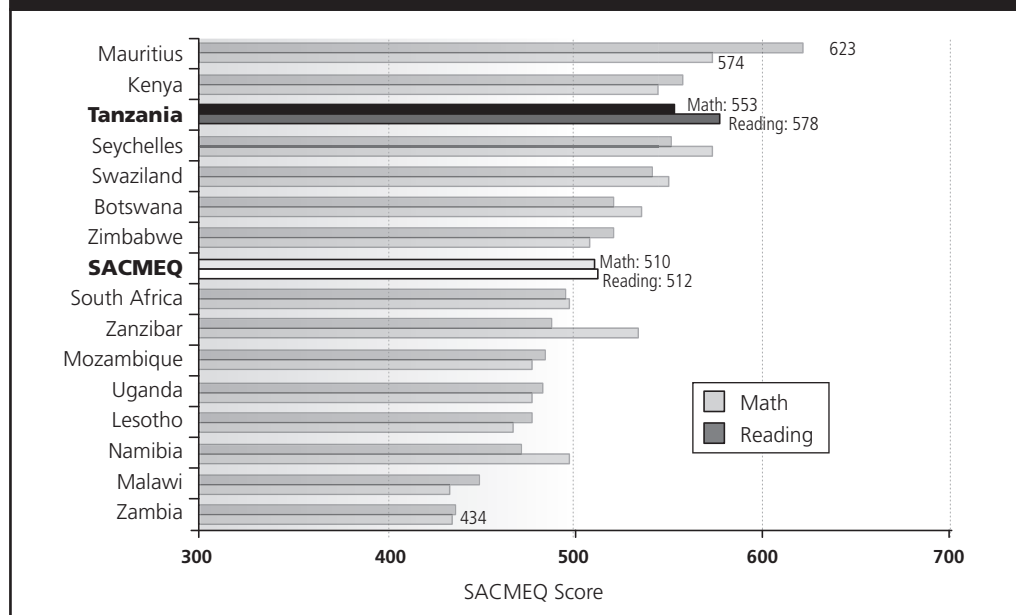
|   | SACMEQ II (2000) |                 | SACMEQ III (2007) |                 |
|---|------------------|-----------------|-------------------|-----------------|
|   | Reading          | Math            | Reading           | Math            |
| Mean Score<br>(Standard Errors)                                   | 545.9<br>(5.00)  | 522.4<br>(4.17) | 577.8<br>(3.40)   | 552.7<br>(3.51) |
| % of Pupils with minimum<br>reading/mathematics skills ( Level 4) | 82.3%<br>(1.68)  | 39.5%<br>(0.93) | 89.9%<br>(1.05)   | 57.0%<br>(0.82) |
| % of Pupils with reading/mathematics<br>skills Level 5            | 63.5%<br>(1.03)  | 18.1%<br>(0.55) | 77.9%<br>(0.82)   | 31.5%<br>(0.57) |

Source: SACMEQ 2007 data, MoEVT.

The evidence gathered in Table 4.4 suggests that the quality of learning has improved, as expressed by scores in reading and in mathematics, that have risen over the 2000-07 period from 546 to 578, and from 522 to 553, respectively.<sup>74</sup>

**Figure 4.8: SACMEQ Reading and Mathematics Scores, 2007**

*SACMEQ Scores*



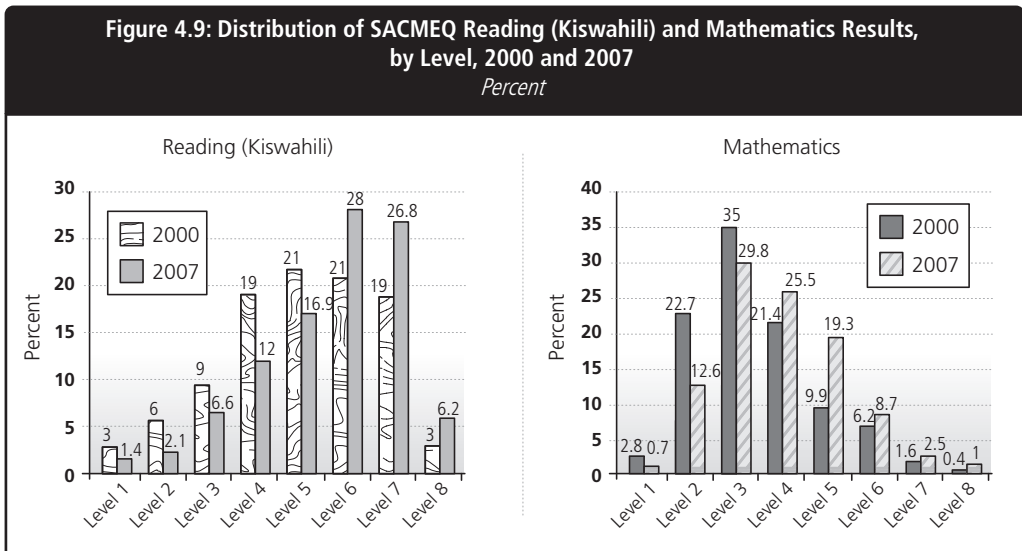
Source: SACMEQ 2007 data; IIEP, 2010.

Compared with other SACMEQ countries, in 2007 Tanzanian children were among the best performers in mathematics (third position out of 13), and the best performers in reading (See Figure 4.8). The reading score may be closely correlated to the fact that Tanzania is the only country where the main teaching language is the local language (Kiswahili).<sup>75</sup>

Although these comparative results are encouraging for Tanzania, the region in itself is one of poor learning achievements by international standards. This is underlined by African countries' performance in international assessments: (i) in the Progress in International Reading Literacy Study (PIRLS) 2006 assessment for instance, South Africa (the only African country participating) ranked last out of 45 countries, with an average score of 302, a level considered to be particularly low by international standards;<sup>76</sup> and (ii) a similar pattern is observed in math among Grade 8 students. On the Trends in International Mathematics and Science Study (TIMSS) 2007 assessment, Botswana and Ghana (the two participating African countries) respectively ranked 43 and 47 out of 48 countries worldwide. Their scores (364 and 309 respectively) indicate that students' level in math is here again low by international standards.<sup>77</sup>

In reading (Kiswahili), 90 percent of the students reached Level 4, which is the point at which children can read for meaning (and is therefore considered the minimum level), up from 82 percent in 2000 (See Figure 4.9 below). A marked increase is noted in Level 5 - Inferential reading - between 2000 (63.5 percent) and 2007 (77.9 percent). The greater

number of students achieving higher literacy levels (Levels 6 to 8) is an important achievement, in a shift away from lower competency levels (Levels 1 to 3). Mathematics learning achievements have also improved markedly, with 57 percent of pupils reaching Level 4 (again considered the minimum) in 2007, up from 39.5 percent in 2000. In mathematics however, few students had skills beyond competent numeracy (Level 5), raising an issue about the quality of mathematics teaching in primary schools.

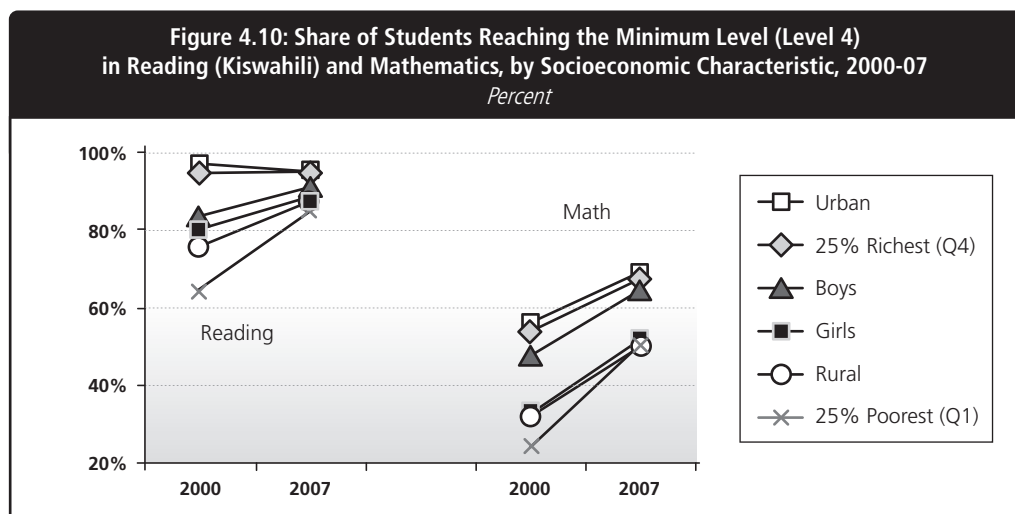


Source: SACMEQ, 2000, 2007 data, MoEVT.

Although, the improvement revealed by SACMEQ data is quite impressive for a period of rapid primary education enrollment growth, pupils achievement levels are not necessarily satisfactory. In reading, 22 percent of the pupils do not reach Level 5, casting doubts on the sustainability of their literacy. In mathematics, more than 43 percent do not reach the minimum Level 4. Undoubtedly, the 2000-07 period has shown an encouraging dynamic in the quality of education, but the system still faces important challenges, especially as the SACMEQ III, 2007 survey will not have accounted for the full impact of the fee-free primary education policy, whose first cohort of students will reach Standard VI in 2008, and whose impact on average learning achievement rates has raised some concerns.

Indeed, a survey of 42,000 children aged five to 16 years conducted in May, 2010 by Uwezo<sup>78</sup> assessed children's basic learning achievements in English, Kiswahili and mathematics, revealing fairly worrying results. It shows that only 54 percent of children aged nine to 16 years could read a story in Kiswahili, 24.6 percent a story in English and 40.5 percent could master basic numeracy skills. Standard VI pupils achieved better results: 74 percent (Kiswahili story), 36 percent (English story), and 58 percent (multiplication). Due to methodological differences, no direct comparisons are possible with SACMEQ results.<sup>79</sup>

Nevertheless, the portraits drawn by the two studies are similar: general literacy and mathematics skills' levels are unsatisfactory.



Source: SACMEQ, 2000, 2007 data, MoEVT.

Learning achievements reflect gender and socioeconomic disparities, both in terms of the number of students reaching the minimum Level 4 (See Figure 4.10), and in terms of the distribution of their reading and mathematics scores (See Annex Tables 4.8 to 4.10).<sup>80</sup>

Over the 2000-07 period, the differentiated impact of diverse socioeconomic characteristics (male/female, urban/rural) on learning achievements has dropped considerably; in both mathematics and reading, there has clearly been a general trend of convergence among most groups. The following differences in the minimum levels reached across groups are generally found to be statistically significant, except for gender:<sup>81</sup>

- (i) Girls still fared slightly worse than boys in reading in 2007, 88.7 percent and 91.1 percent achieving the minimum level, respectively, although the difference is not statistically significant. In mathematics the gender gap is broader: barely 50 percent of girls reached the minimum level compared with 64.5 percent of boys;
- (ii) Although the gender gap has remained constant in reading and has decreased in math, Tanzanian results appear comparatively worse when considering that "in other regions of the world, quite close results in mathematics can be observed for boys and girls, sometimes at the advantage of boys whereas the results in language are clearly in favor of girls" (Bernard, 2006);
- (iii) Achievements vary across locations: pupils in urban areas are more likely to reach the minimum levels than those in rural areas, in both reading and mathematics. Again, disparities are more marked in mathematics than in reading;

- (iv) However, the gap in results has decreased since 2000, especially in math. In 2007, for every 100 urban students reaching the minimum level in math, only 91 rural pupils did, against 79 in 2000. It therefore appears that the system's ability to raise the level of pupils' learning achievements has primarily benefited students from rural areas;
- (v) Regional disparities also exist. The percentage of pupils with minimum reading skills varied from 84.2 percent in Mwanza region to 95 percent in Southern Highland region in 2007. Mastery of mathematics is particularly low in the Kilimanjaro and southern regions, and has indeed dropped, which should be subject to further analysis to better understand the underlying issues;
- (vi) Disparities between pupils from different socioeconomic backgrounds are among the starkest: students from poorer households underperform their peers in both reading (85.7 percent and 95.9 percent achieve the minimum level, respectively) and in mathematics (with respective shares of 51.3 percent and 68.4 percent); and
- (vii) It is however worthy of note that the general improvement in reading and mathematics, while benefitting all pupils, has been relatively more marked for students from low socioeconomic backgrounds, with parity indexes rising over the 2000-07 period from 0.67 to 0.89 in reading, and from 0.43 to 0.75 in mathematics.

Compared with 2000, inequities between groups have tended to decrease. However, as seen in Figure 4.10 above, disparities are more marked between groups of different socioeconomic status: the poorest children fare considerably worse than their wealthier peers, and have the worst level of performance of all the categories considered. Furthermore, Figure 4.10 does not effectively convey the cumulative nature of disadvantages: a rural girl from a poor family will fare worse still.

### Factors Affecting Primary Level Learning Outcomes

Multivariate analyses (using the ordinary least squares model) identify the factors that have an impact on SACMEQ scores and assess their magnitude, thus analyzing quality in primary schools in further detail.<sup>82</sup> Whereas some factors depend on education policies (class size, pedagogical approaches, teacher characteristics, pedagogical choices, the availability of teaching and learning materials, and so on) student characteristics (gender, age, socioeconomic background, and so on) and certain school characteristics (location, especially) are less influenced by education policies, and have a greater impact on learning achievements. Table 4.5 below synthesizes the multivariate analysis results (See Annex Table 4.10 for the detailed underlying regressions).<sup>83</sup>

As far as pupil characteristics are concerned, the above findings are corroborated: (i) the systematic strong and negative impact on scores of being female suggests the existence of detrimental attitudes toward female pupils; (ii) all else being equal, low socioeconomic



backgrounds are negatively correlated with results, which may highlight the need to set up specific extra-curricular remedial classes for students with the greatest learning difficulties, who are often from disadvantaged groups; teacher attitude/behavior may also need to be improved to retain the attention of the weaker pupils; and (iii) living in a rural area is also negatively correlated with SACMEQ scores, possibly related to factors not grasped here.

The multivariate model offers additional findings of interest however. Children doing more than five domestic tasks a day obtain lower results than their peers. This is not surprising given the homework time sacrificed to chores, and the ensuing tiredness. Furthermore, it compounds the disadvantages faced by girls and the poor, both more prone to domestic tasks. Given how vital children's contributions to running a household are in poor families, no immediate solutions are apparent; specific aids targeting and subsidizing the poorest families and especially prioritizing girls may be an option, and certainly, success-stories do exist.

**Table 4.5: The Effect of Socioeconomic Factors on SACMEQ Scores, 2007**

|  | Positive / Negative   | Insignificant  |
|--|---|--|
| <b>Student Characteristics</b>           | <ul style="list-style-type: none"> <li>• Being a girl (- - -)</li> <li>• Living in a rural area (- - -)</li> <li>• Low socioeconomic status (compared with the intermediate category) (- -)</li> </ul>  | <ul style="list-style-type: none"> <li>• Above official school-age</li> </ul>  |
| <b>Student Learning Time</b>             | <ul style="list-style-type: none"> <li>• Distance to school 2 km (Math) (- -)</li> <li>• Doing more than five daily domestic tasks (- -)</li> <li>• Pupil absenteeism (-)</li> </ul>  | <ul style="list-style-type: none"> <li>• Distance to school (Reading)</li> </ul>   |
| <b>Student School-related Activities</b> | <ul style="list-style-type: none"> <li>• Pupil has repeated a grade (- - -)</li> <li>• Pupil without preschool (Reading) (- -)</li> </ul>   | <ul style="list-style-type: none"> <li>• Pupil without preschool (Math)</li> <li>• Extra tuition in English and math</li> <li>• English spoken frequently at home</li> </ul>   |
| <b>School Context/ Management</b>        | <ul style="list-style-type: none"> <li>• High level of community involvement (+ + +)</li> <li>• School head is female (Reading) (++)</li> <li>• No books in school (- -)</li> </ul>   | <ul style="list-style-type: none"> <li>• Low level of community involvement</li> <li>• Class size over 60 pupils</li> <li>• School resources</li> <li>• Number of latrines</li> <li>• School head is female (Math)</li> <li>• School head has specific qualifications</li> </ul> |
| <b>Teacher Characteristics</b>           | <ul style="list-style-type: none"> <li>• 3 years of initial teacher training (compared with two years or less) (Reading) (+ + +)</li> <li>• Teacher's level in SACMEQ (+)</li> <li>• Teacher has more than 25 years experience (-)</li> </ul> | <ul style="list-style-type: none"> <li>• Gender of teacher</li> <li>• Duration of initial teacher training (Math)</li> </ul>   |

Source: SACMEQ 2007 data. Based on results from Annex Table 4.10.

Note: Effects are significant for both subjects as of the 10 percent level, unless otherwise specified. (+ + +) / (- - -) indicate strong positive/negative impacts, (+ +) / (- -) medium impacts and (+) / (-) low impacts. Effect appraisal is based on the level of the marginal impact.

*Learning time, both at school and at home, has an important impact on scores.* It is reflected by pupil absenteeism, distance to school and domestic chores at home factors. It is widely recognized today that teaching time is a key correlate of learning outcomes, especially for disadvantaged children who may have very few learning opportunities outside school hours (Millot and Lane, 2002; Abadzi, 2006; Maajgard and Mingat, 2011). In addition to student absenteeism, teacher absenteeism,<sup>85</sup> strikes, late entry and casual holidays reduce effective teaching time. The practice of double-shifting, known to be used for early grades, further limits teaching time. Addressing these issues is crucial to improve learning outcomes. Effective classroom practices, such as recording daily student attendance and adapting school calendars may help improve student attendance, whereas teacher absenteeism could be reduced through improved school-level management practices, including the close monitoring of teacher attendance by school heads and parents (Maajgard and Mingat, 2011). Better understanding the practice of double-shifting will be important to understand how it affects teaching time; for this, implementing the EMIS at the school level will prove essential.

*The negative impact of repetition on scores is worthy of note.* This is consistent with findings in other countries: a 2007 PASEC study shows that repetition has a strong negative impact on pupils' learning achievements in the medium term.<sup>86</sup> In addition, because repetition tends to have a significant negative impact on dropout, it should be used only as a last recourse, for students with acute learning difficulties.<sup>87</sup> The no primary level repetition policy established by MoEVT is a very effective and efficient measure in this regard.

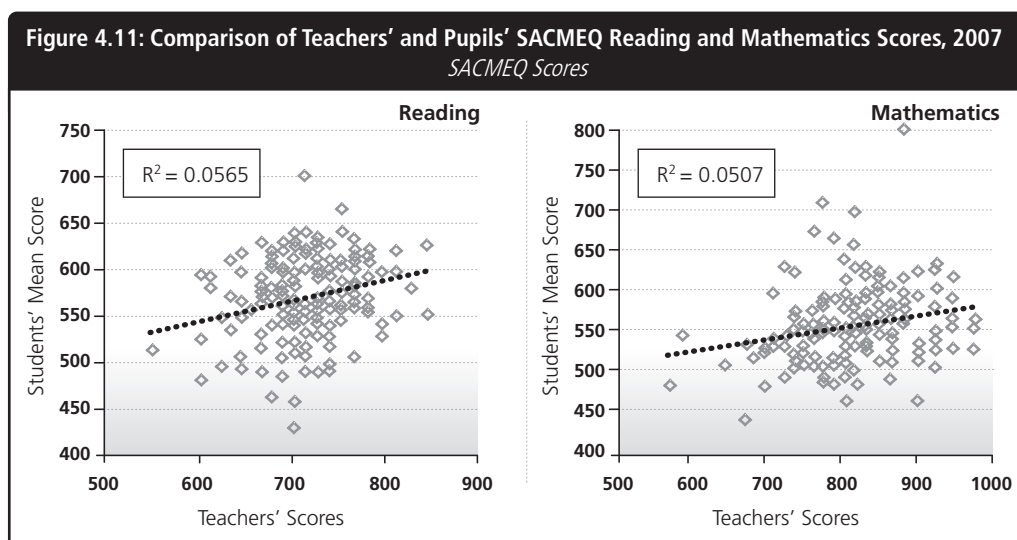
*In terms of school organization and management, class size or the level of a school's resources have no significant effect on pupils' performance.* On the other hand, the absence of books has a negative impact on results. Evidence from various studies confirms that books are the most cost-effective investment in learning outcomes, and recommend a textbook-pupil ratio of 1 to 1 (Maajgard and Mingat, 2011).

*High community involvement in school affairs is highly and positively correlated with scores,* which could be related to the increased interest, concern and effectively control of education services by local education actors, making head teachers and teachers more accountable. Improving local accountability systems could therefore be an effective measure to improve student achievements.<sup>88</sup> Female head teachers tend to be associated with better reading scores, although their having received specific training does not indicate a significant impact. This may be due to the fact that head teachers are not systematically trained (only 39 percent of head teachers surveyed had been) and when they are, their training is often very short, making little difference to their capacity to improve learning outcomes. Revisiting current head teacher training modalities would certainly be beneficial.

*Finally, having three years of initial teacher training is the only teacher characteristic having a strong impact.* Teacher gender has no impact on scores. Having 25 years or more teaching experience in fact tends to negatively affect scores, although the impact is marginal. This might reflect growing job dissatisfaction or demotivation, outdated skills and pedagogical approaches, due to scarce in-service training opportunities, and so on. Teacher qualifications, on the other hand, comparing having three years of training against having two or less,

have a strong and positive impact on reading (although none on mathematics). This raises questions about the ability of teacher training to raise teachers' competencies in mathematics, a subject often weakly mastered by trainees and poorly taught, as suggested by the lower scores later obtained in mathematics by pupils.<sup>89</sup>

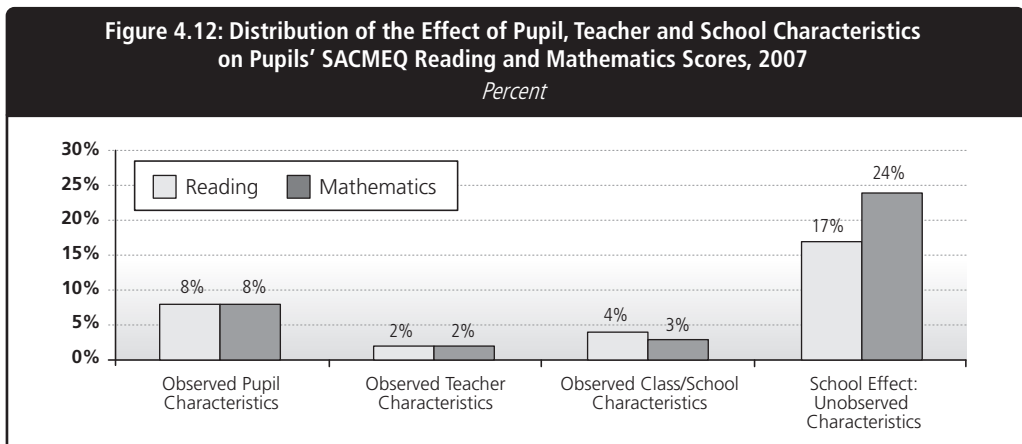
Teachers' SACMEQ learning levels are positively but marginally correlated to student performance (See Figure 4.11). Although teachers' scores are higher than pupils' ones in all cases, higher teachers' scores do not automatically translate into higher pupils' scores. This raises concerns about the relationship between teacher knowledge, pedagogical practices and student achievement. It also highlights that it is important to look beyond teacher content mastery and more into teaching and management practices to better understand how teachers influence students' learning outcomes (See the *class/school effect* description below).



Source: SACMEQ, 2007 data, MoEVT, authors' computations.

However, these results should be interpreted with caution: because of complex bias issues, especially linked to the unavailability of pupils' initial scores, SACMEQ data do not offer a great degree of reliability in the analysis of teacher, classroom and school factors on results.<sup>90</sup> However, from the results shown in Figure 4.12 below, the bias introduced by the unavailability of initial student scores might not be as high as expected. Indeed, the magnitude of the effect of various factors analyzed on pupils' reading and mathematics scores is close to what is found in analyses that do take pupils' initial learning levels into account (such as PASEC studies). The characteristics of teachers, classrooms and schools considered barely explain five to six percent of the variation in scores. The major effect can be attributed to unobserved class characteristics, or what are commonly called the *class/teacher effect* or the *school effect*. These refer to classroom dynamics, related to teachers' motivation, charisma, talent, and pedagogical skills and approach, to their interaction with students, to school head's management style, to the degree of community

involvement, and so on. The school effect in Tanzania explains between 17 percent (reading) and 24 percent (mathematics) of the observed variations in scores. On the basis of international evidence, that suggests that this effect has a significant impact on learning.



Source: SACMEQ, 2007; authors' computations derived from the econometric analysis.

This analysis has highlighted some important findings to improve pupils' learning achievements, although the low explanatory power of the models (the observed factors account for 13 percent to 14 percent of the variations in results) clearly indicates that other variables, not captured by the model, are more significant. To identify and understand them will involve in-depth analysis based on school visits, which will also enable the documentation of best practices for future replication, and the compilation of school-level data necessary to run more sophisticated methods of analysis of the determinants of learning achievements.

Based on the evidence discussed in this section, the quality of the primary education system could be characterized by: (i) encouraging improvements in learning outcomes between 2000 and 2007; (ii) overall fairly modest quality, compared with international standards; (iii) the impact of the fee-free primary policy that is not fully grasped by the available data; and (iv) prevailing, although reduced, gender, location and wealth disparities that require specific measures for overall quality to be improved and disparities further narrowed.

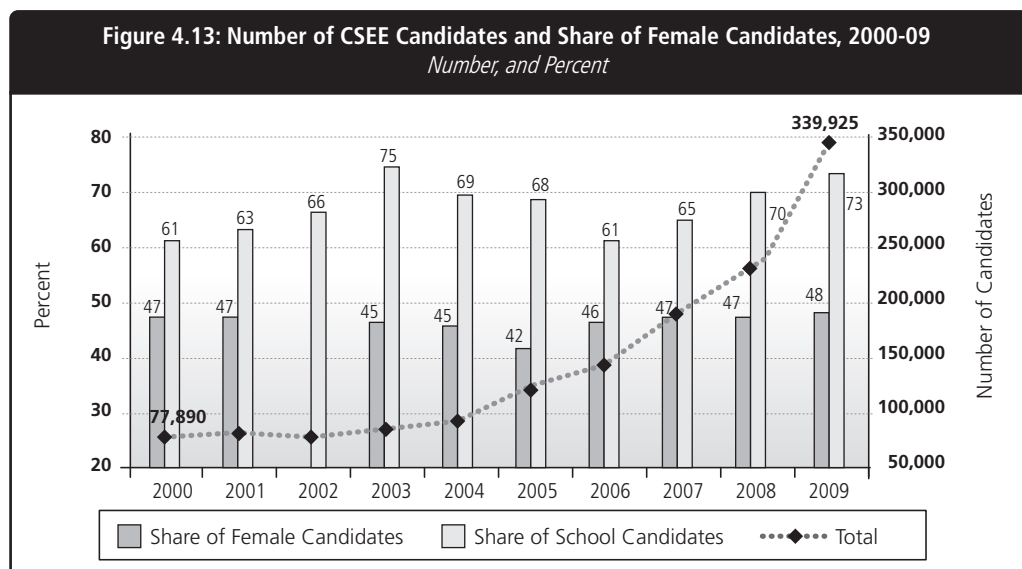
## ● O-Level Learning Outcomes

### Certificate of Secondary Education Examination (CSEE) Results

The Certificate of Secondary Education Examination (CSEE) is administered at the end of O-Level. Candidates sit between seven and ten subjects, chosen among: Civic education, Kiswahili, English, Mathematics, Social sciences, Technical sciences, Natural sciences, Commercial or Home economics, and various foreign languages.<sup>91</sup> The CSEE is open to

private candidates that register directly at the central level.<sup>92</sup> The exam is also used to select students for government A-Level schools.

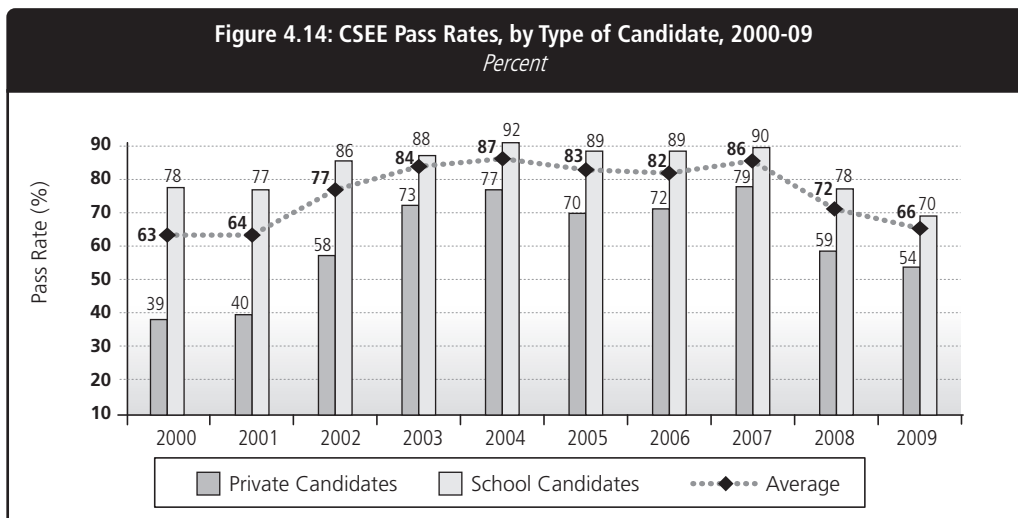
In 2009, 339,925 candidates sat for the CSEE, a sharp increase over 2000, when 77,890 students sat the exam (See Figure 4.13).<sup>93</sup> In 2009, only 27 percent of candidates (91,589) were private, on a downward trend since 2006. School candidates account for the greatest rise in exam registration numbers, having increased by a factor of five over the decade, from 47 thousand to 248 thousand students (the number of private candidates has risen three-fold), and by a factor of three since the effective implementation of the Secondary Education Development Programme (SEDP) in 2005. Gender parity among CSEE candidates has almost been reached, with 48 percent female candidates in 2009, up from 42 percent in 2005, its all time low (See also Annex Table 4.11).



Source: NECTA; authors' computations.

CSEE pass rates have shown signs of deterioration over the end of the period, falling under the 80 percent threshold in 2008, and reaching 66 percent in 2009.<sup>94</sup> Private candidates' pass rates are particularly low, systematically lagging behind those of school candidates: in 2009, only 54 percent of private candidates passed (See Figure 4.14 below). Although the proportion of school candidates who passed is better (70 percent), it is lower than in 2009 (90 percent). Several reasons might account for this drop: (i) the introduction of the new curriculum in 2005 that was probably not adequately mastered by teachers at the time, given that no systematic and comprehensive training was conducted (See Annex Note 4.1 for a brief overview of curriculum development issues in Tanzania); (ii) the lack of alignment of the exam questions with the new curriculum; (iii) the more heterogeneous student backgrounds, resulting from the expansion of the secondary level, potentially leading to

greater access of students with learning difficulties; and (iv) tougher marking criteria, associated with the limited number of A-Level seats available.



Source: NECTA statistical yearbooks; authors' computations.

Note: The pass rate is: Number of candidates who obtained a Division I, II, III or IV / Number of candidates who sat the exam. Zanzibar is included in the computation.

The female pass rate is systematically lower than the male one, and has deteriorated over 2007-09, especially among school candidates, as shown by the drop in the gender parity index (GPI) from 0.97 to 0.89 (See Table 4.6).

**Table 4.6: CSEE Pass Rate, by Type of Candidate and Gender, 2006-09**  
Percent and GPI

|      | School Candidates |        |      | Private Candidates |        |      | Total |        |      |
|------|-------------------|--------|------|--------------------|--------|------|-------|--------|------|
|      | Male              | Female | GPI  | Male               | Female | GPI  | Male  | Female | GPI  |
| 2006 | 90.1              | 87.8   | 0.97 | 74.6               | 69.3   | 0.93 | 84.7  | 79.5   | 0.94 |
| 2007 | 90.5              | 89.2   | 0.99 | 80.5               | 76.8   | 0.95 | 87.3  | 84.4   | 0.97 |
| 2008 | 78.5              | 76.9   | 0.98 | 62.5               | 55.8   | 0.89 | 74.2  | 69.6   | 0.94 |
| 2009 | 73.4              | 65.6   | 0.89 | 56.5               | 51.8   | 0.92 | 69.3  | 61.4   | 0.89 |

Source: NECTA statistical yearbooks.

Note: Divisions I to IV are considered as a pass. Zanzibar is included in the computation.

Community schools, which registered 70 percent of all mainland CSEE school candidates in 2009, are underperforming other schools, achieving a pass rate of 68 percent, against 82 percent for public and nongovernmental schools, and 89 percent for seminary schools (See Table 4.7 below). It also shows that over 2008-09, community schools have witnessed the greatest drop in pass rates, by 16.8 percent (compared with 10.3 percent for government schools, 4.9 percent for nongovernmental schools and 1.6 percent for seminary schools),

thus pushing down the global 2009 pass rate. These observations raise some concerns, because community schools currently host a sizeable number of O-Level students and represent MoEVT's core strategy to increase O-Level access in the future. At this stage, it is impossible to tell whether this situation is due to the greater intake in community schools of pupils coming from marginalized groups with greater learning difficulties, and/or to decreasing pedagogical effectiveness. In either case intervention is needed, but a complementary study should first clarify the causes and identify possible courses of action.

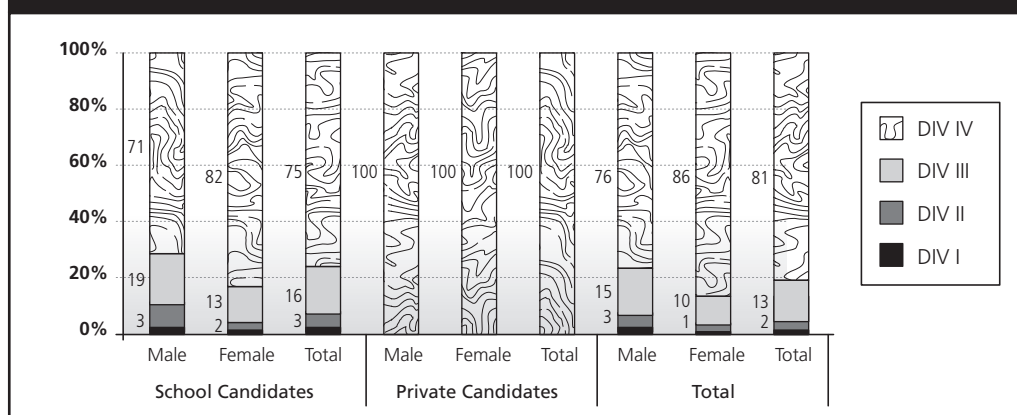
**Table 4.7: School Candidates CSEE Pass Rates and Score Distribution, by Type of School, 2009**  
Percent

|                 | Number of Candidates | Pass Rate (%) | Distribution of Pass Grades/Divisions (%) |      |      |      |       |
|-----------------|----------------------|---------------|---|------|------|------|-------|
|                 |                      |               | I   | II   | III  | IV   | Total |
| Public          | 12,046               | 82.2          | 6.8                                       | 9.2  | 22.9 | 61.1 | 100.0 |
| Community       | 161,277              | 67.7          | 1.1                                       | 4.3  | 13.6 | 81.0 | 100.0 |
| Nongovernmental | 52,131               | 82.0          | 4.5                                       | 8.5  | 19.5 | 67.5 | 100.0 |
| Seminaries      | 5,223                | 89.3          | 13.7                                      | 15.4 | 25.4 | 45.5 | 100.0 |
| Total Mainland  | 230,677              | 72.2          | 2.6                                       | 6.0  | 16.1 | 75.3 | 100.0 |

Source: Department of Secondary Education, MoVET, 2010; authors' computations.  
Note: Divisions I to IV are considered as a pass. Zanzibar is excluded from the computation.

Scores are generally poor, with four-fifths of those who did pass achieving no more than a Division IV, the lowest grade. It is worth noting that almost no private candidates obtained a grade above Division IV (See Figure 4.15).<sup>95</sup> Very few graduates, barely seven percent of government school candidates and just four percent of nongovernmental school candidates, obtained a Division I. Information on results by school type further confirms the low level of community school performance, with the highest proportion of students passing with the minimum Division IV grade (81 percent, against just 45 percent in seminary schools). Female candidates also obtain comparatively lower scores, 86 percent achieving the minimum Division IV grade, against 76 percent of their male counterparts.

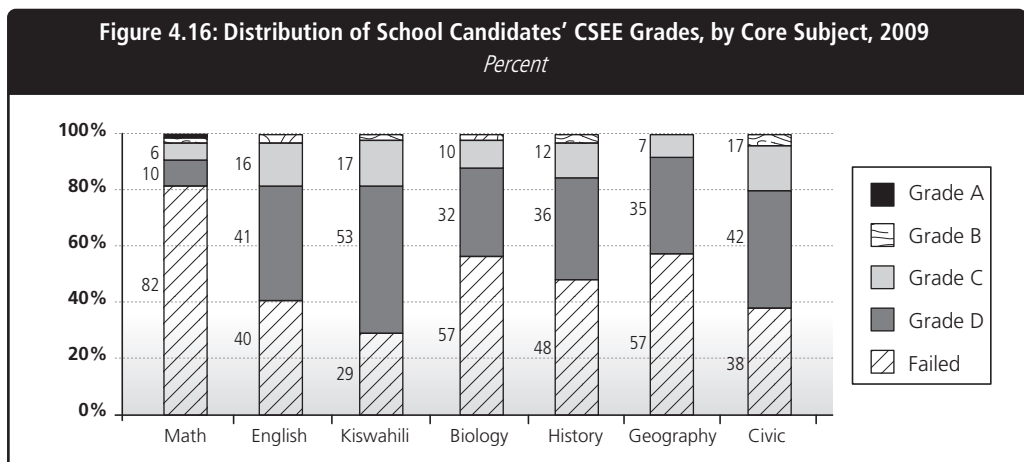
**Figure 4.15: Distribution of CSEE Pass Grades, by Type of Graduate and Gender, 2009**  
Percent



Source: NECTA statistical yearbook; authors' computations.  
Note: Zanzibar is included in the computation.

Failure among school candidates is particularly prominent in math (82 percent) and to a lesser extent in biology and geography (57 percent), although results in these two subjects have deteriorated less than those of other subjects, such as Kiswahili, where the failure rates rose by 55 percent. In general, private candidates fare much worse than school candidates, although failure is less prevalent today than a decade ago. Results are particularly poor in science subjects (math and biology) with failure rates as high as 98 and 96 percent, respectively. Boys generally outperform girls, except in Kiswahili. Gender disparities have narrowed among school candidates in all core subjects, as shown by the gender parity index, whose value was closer to one in 2009 than in 2000. Among private candidates, gender disparities have remained stable and weak (See Annex Tables 4.11 and 4.13).<sup>96</sup>

The general weak performance can also be assessed by the low share of school candidates obtaining a credit in individual subjects (A, B or C grades) which varies from 8 percent in math and geography to 20 percent in English and civic studies.



Source: NECTA statistical yearbook; authors' computations.  
Note: Grade A: 81-100%; Grade B: 61-80 %; Grade C: 41-60%; Grade D:21-40%; below 20% is a fail.

The generally poor performance in English among school candidates (40 percent failure rate, and 41 percent achieving a Grade D) is worrying, as English is the main teaching language at the secondary level (See Figure 4.16). Despite having used English to learn during four years, few students master it adequately. In fact, a set of studies carried out in the context of the Language of Instruction in Tanzania and South Africa (LOITASA) research project have highlighted evidence that the use of English in classrooms was limiting students' expression, interactions, and creativity (Brock-Utne, 2007). In addition, the language has heightened disparities in performance, favoring a small privileged group of students over the mass. Although based on a small sample of school observations, these results undermine the use of English as the main teaching language in lower secondary education. A balance is to be found between adequately educating all young people, ensuring they have the right skills to play a significant role in society, and ensuring that the country has the required high-level skills to compete internationally. A more balanced use of Kiswahili and English as



teaching languages for different subjects could be considered. Strengthening primary level English could also have a positive impact on general learning outcomes, through certain subjects (such as mathematics and science subjects) being taught in English towards the end of primary.

The deterioration of CSEE performance over the last two years has raised concerns in the education community, given the system's future expansion. To better understand the issues at stake, in 2010 MoEVT's Department of Secondary Education collected the views of 225 A-Level selection committee members, all education specialists working in various institutions (DSE, 2010). The factors stated by the members to explain the falling CSEE performance included: (i) the lack of teachers, especially in science-related subjects and English; (ii) inadequate school infrastructure and utilities; (iii) poor teaching and learning materials; (iv) the low level of motivation among the teaching force; and (v) the inadequate monitoring and evaluation system. All of these are related to O-Level underfunding.<sup>97</sup>

### Factors Explaining CSEE Results

Multivariate analyses have been conducted to differentiate among factors that have a significant impact on CSEE pass rates, and assess their magnitude. Such analyses aim to grasp the net effect of each factor, all other factors being held constant. Again, biases linked to the lack of base-line information on students initial learning levels may blur the results. Two models have been run, using logistical regressions. Whereas the first model deals with the general pass rate correlates (examining the impact of factors on the likelihood of achieving a Division between I and IV), the second one analyzes the correlates of obtaining a Division between I and III (considered good pass rates). Table 4.8 provides a review of the main determinants of CSEE pass rates (The underlying regression models are gathered in Annex Table 4.15).

| <b>Positive &amp; Significant Impact</b>   | <b>No Significant Impact</b>  |
|--|---|
| <ul style="list-style-type: none"> <li>• Faith-based and nongovernmental schools</li> <li>• PTR 40:1</li> <li>• Qualified teachers 85%</li> <li>• Books per student</li> <li>• At least one latrine per 30 students</li> </ul> | <ul style="list-style-type: none"> <li>• Government school (Ref. District school)</li> <li>• Urban Area of residence (Ref. Rural)</li> <li>• PTR ]40-65] (Ref. PTR &gt; 65)</li> <li>• Number of students per chair</li> <li>• Number of teachers per desk</li> <li>• School has running water (Ref. no water)</li> <li>• School has electricity (Ref. no electricity)</li> </ul> |

Source: Derived from Annex Table 4.15.

The explanatory power of the model is weak: the factors considered only account for 7.9 percent of the variation in 2009 CSEE pass rates. It shows that although the area of residence shows no correlation with student achievements, the type of school attended is significantly correlated: indeed, central government and district council schools achieve far

worse results than nongovernmental schools, even when controlling factors such as location, pedagogical approach, school conditions and teacher characteristics. As with PSLE, the factors with the greatest impact on learning outcomes are not included in the model; the unavailability of initial pupil scores strongly limited the analysis of teacher, classroom and school-related factors.<sup>99</sup> So, for instance, nongovernmental schools may attract students from higher socioeconomic and cultural backgrounds (which are often correlated with better results). As a result, it is not possible to reach definite conclusions about schools' effectiveness on this basis.

*Class size has a significant positive impact on student performance.* The probability of passing the CSEE is 3.5 percentage points higher in schools with average pupil-teacher ratios of 40 to 1 and below, compared with schools having PTRs above 65 to 1. Learning achievements also tend to be positively affected by the availability of latrines (marginal increase in the pass rate of 6.1 percentage points). Schools that have one extra book per student register an increase in the CSEE pass rate of 1.9 percentage points. O-Level books are in great shortage and badly allocated across schools (See Chapter 7 on management); improving this situation would positively affect student learning achievements. Finally, schools with high proportions of qualified teachers (at least 85 percent) obtain better CSEE pass rates. Efforts currently undertaken by MoEVT to upgrade teachers' qualifications need to be sustained and adequately monitored.

*Classroom facilities on the other hand (such as teacher desks and student chairs) have no effect on students' learning achievements, nor does the availability of electricity and running water on school premises.*

Good pass rates are influenced by the same factors as above (school ownership, the pupil-teacher ratio, the availability of books, and the proportion of qualified teachers), underlining the potential role of those factors in improving O-Level learning achievements. Again, rural schools achieve lower proportions of good pass rates than urban ones, which could be associated with specific rural school characteristics that were not grasped in the analysis; it is known that most rural schools face harsher learning conditions than urban schools; which may ultimately affect their ability to educate an acceptable proportion of their students to reasonable standards.

This analysis remains fairly limited, given the data constraints initially identified and the models' relatively modest explanatory power. Nevertheless, it underlines the fact that factors affect student results which could not be captured by the model according to the specification used. Additional in-depth analyses on learning outcomes and improved tools to facilitate such analyses are required to inform clear policy recommendations.

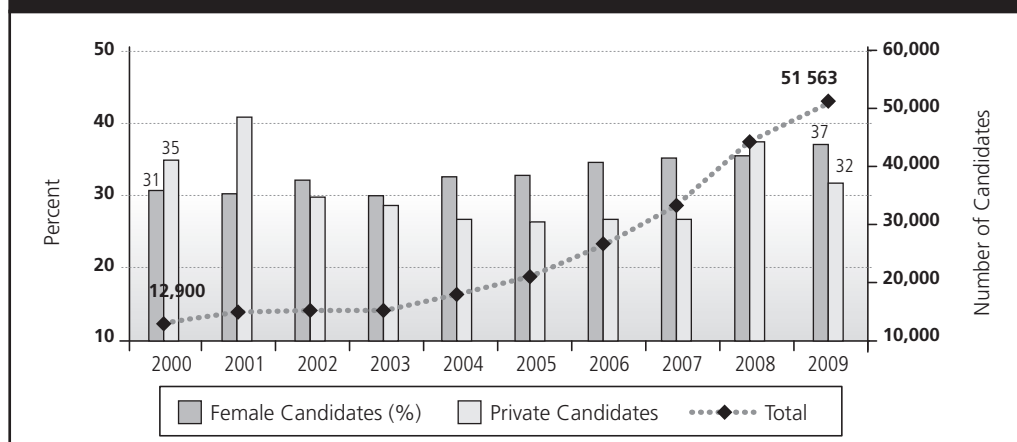
## ● A-Level Learning Outcomes

### Advanced Certificate of Secondary Education Examination (ACSEE) Results<sup>100</sup>

At the end of the secondary education cycle, A-Level students sit the Advanced Certificate of Secondary Education Examination (ACSEE). This national examination offers a variety of subjects, and is awarded according to four divisions, like the CSEE: to obtain a pass at ACSEE, a student must be awarded a Division between I and IV, based on the aggregate points in three main subjects. Both school students and private candidates can sit the exam, subject to them fulfilling the entry requirements. The ACSEE also constitutes the entry examination for higher education, for which students must obtain a minimum aggregate score of 4.5 points in three principal subjects.

Over the 2000-09 period, the number of ACSEE candidates has risen from 12,900 to 51,563 (See Figure 4.17). A particular boost in the number of candidates sitting the exam is observed since 2007, due to the increased intake of O-Level and A-Level students since 2005, under the SEDP I. School students have represented three quarters of the candidates on average over the period. The participation of girls has improved, from 31 percent in 2000 to 37 percent in 2009 (See Annex Table 4.16); their generally low level of participation is in fact the direct consequence of their relatively lower enrollment in A-Level (See Chapter 2).

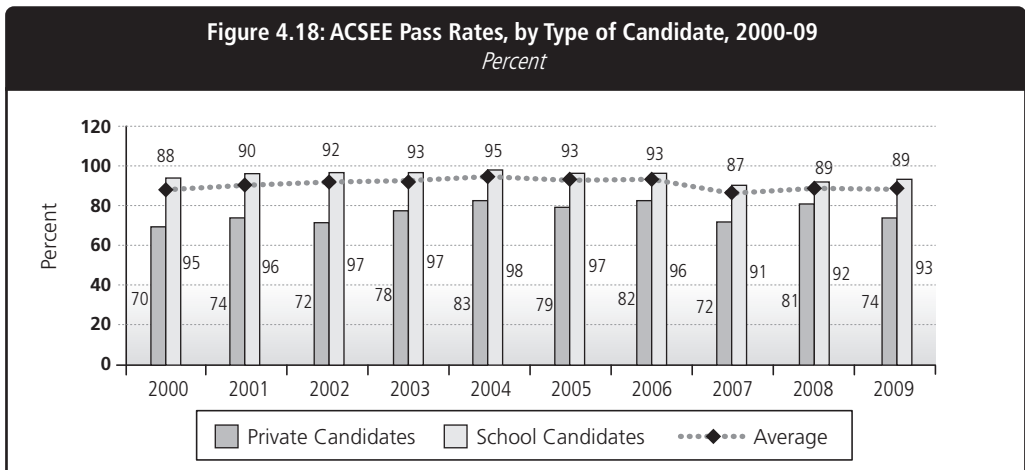
**Figure 4.17: Number of ACSEE Candidates, and Share of Female and Private Candidates, 2000-09**  
Percent



Source: NECTA statistical yearbooks; authors' computations.

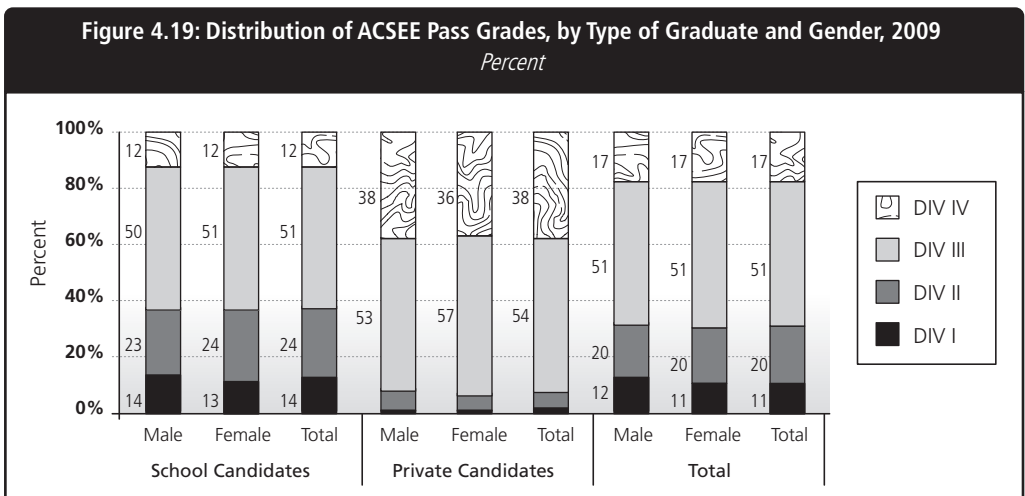
ACSEE pass rates are generally good, exceeding 90 percent until 2007 and stabilizing at 89 percent in 2009. School candidates systematically outperform private candidates, and indeed by the end of the period their pass rate had not dropped by as much as that of their private peers; in 2009, pass rates were 93 percent for school candidates and 74 percent for private ones. No significant gender disparities have been observed among school candidates, however female private candidates tend to slightly outperform their male counterparts (See

Annex Tables 4.17 and 4.18). Girls completing A-Level are a fortunate minority, certainly from the most privileged socioeconomic backgrounds (See Chapter 5 on equity).



Source: NECTA statistical yearbooks; authors' computations.

School candidates pass with better scores than their private counterparts (See Figure 4.18): 12 percent and 38 percent respectively obtain Division IV grades. Half the school candidates score a Division III, a quarter score Division II and 14 percent score a Division I grade, the best result, and one almost never reached by private candidates.



Source: NECTA statistical yearbooks; authors' computations.

Again, gender disparities are virtually insignificant (See Figure 4.19). The good overall level of results may be linked to that fact that only the best students reach A-Level in the first place, usually a fortunate few from the wealthier families. In coming years a growing

number of O-Level students will be sitting the exam, as secondary education access is expanded. It is important to develop and implement mechanisms to adequately monitor learning outcomes; especially given that a new A-Level curriculum will be introduced in 2010.

## ● Vocational Education Learning Outcomes

The analysis of vocational education learning outcomes focuses on long courses, that are delivered by VET institutions over three years. Those trainees who complete their year are eligible to attempt the end of year examination. However, the examinations are not compulsory, and some students quit the programme before sitting them, upon finding suitable employment.<sup>102</sup>

Of the 68,502 enrollees on VET long courses in 2008, 79 percent (53,818 learners) completed their year, down from 88 percent in 2006 (See Table 4.9). Unfortunately, the kind of long-term data that would enable to better grasp the underlying issues is unavailable.

**Table 4.9: Number and Proportion of VET Long Course Learners Completing their Year, by Gender, 2005-08**  
*Number and Percent*

|      | Number of Learners |          | Number Completing their Year |          | Share Completing their Year (%) |        |         |      |
|------|--------------------|----------|------------------------------|----------|---------------------------------|--------|---------|------|
|      | Total              | % Female | Total                        | % Female | Male                            | Female | Average | GPI  |
| 2005 | 57,078             | 42.9     | 48,889                       | 41.8     | 87.3                            | 83.4   | 85.7    | 0.96 |
| 2006 | 66,997             | 42.3     | 58,818                       | 41.6     | 89.0                            | 86.2   | 87.8    | 0.97 |
| 2007 | 95,766             | 48.7     | 81,119                       | 47.3     | 86.9                            | 82.4   | 84.7    | 0.95 |
| 2008 | 68,502             | 45.1     | 53,818                       | 44.5     | 79.4                            | 77.6   | 78.6    | 0.98 |

Source: VETA, 2008.

Table 4.9 also underlines the fact that female learners drop out more than their male peers, as demonstrated by the lower share of girls completing their year than their share of trainees. This situation is not uniform across centers of different ownership however; girls are more prone than boys to complete their programme when enrolled in nongovernmental or faith-based training centers. Evidence from 2007 suggests that centers owned by the central government and VETA also tend to be more effective in retaining their learners: 93 percent of their students complete their cycle, against less than 85 percent for other types of centers (See Table 4.10 below).

**Table 4.10: Number and Proportion of VET Long Course Learners Completing their Year, by Gender and Type of Training Center, 2007**

*Number and Percent*

|                    | Number of Trainees |             | Number Completing their Year |             | Share Completing their Year (%) |             |             |             |
|--------------------|--------------------|-------------|------------------------------|-------------|---------------------------------|-------------|-------------|-------------|
|                    | Total              | % Female    | Total                        | % Female    | Male                            | Female      | Average     | GPI         |
| Central Government | 10,810             | 41.5        | 10,059                       | 38.6        | 97.6                            | 86.6        | 93.1        | 0.89        |
| Faith-based        | 35,597             | 57.4        | 30,186                       | 58.4        | 82.6                            | 86.4        | 84.8        | 1.05        |
| Local Government   | 1,420              | 25.1        | 1,219                        | 22.6        | 88.7                            | 77.3        | 85.8        | 0.87        |
| Nongovernmental    | 6,670              | 48.4        | 5,593                        | 50.2        | 80.9                            | 87.0        | 83.9        | 1.08        |
| Private            | 33,743             | 45.2        | 27,054                       | 41.3        | 85.8                            | 73.3        | 80.2        | 0.85        |
| VETA               | 7,526              | 38.3        | 7,008                        | 37.4        | 94.5                            | 90.9        | 93.1        | 0.96        |
| <b>Total</b>       | <b>95,766</b>      | <b>48.7</b> | <b>81,119</b>                | <b>47.3</b> | <b>86.9</b>                     | <b>82.4</b> | <b>84.7</b> | <b>0.95</b> |

Source: VETA, 2008.

The data available for 2007 also shows wide regional disparities in the percentage of learners completing their year, from 63 percent in Lindi and Rukwa regions to more than 95 percent in Arusha, Dodoma, Kilimanjaro, Morogoro, Shinyanga, Singinda and the coastal regions (See Annex Table 4.19).

The proportion of eligible trainees that sit the exam is highly variable. In 2008, it stood at 58 percent, and its highest recorded level was 67 percent, in 2006. This suggests that a high proportion of trainees leave the programme without certification, which is of course a minor issue if the reason for their abandon is having found employment related to the skills acquired, which appears to be the case (See Chapter 6 on external efficiency).

Three tests are currently available in the context of long courses: (i) the Trade Test is the conventional way of assessing trainees, and consists mainly of a final written test and a practical session; (ii) the Competence Based Education and Training (CBET) assessment that focuses on trainees achievement of learning outcomes rather than pass or fail rates; and (iii) the National Business Examination. The trade test is currently being phased out in benefit of the CBET, following a global approach worldwide, focusing on the acquisition of knowledge and skills, perceived to be the guarantee that graduates can perform certain functions in the work place.

In 2008, 63 percent of those sitting the exam took the trade test, whereas 26 percent registered for the CBET assessment, whose importance has increased steadily since 2006, and 11 percent registered for the national business examination (See Table 4.11 below).

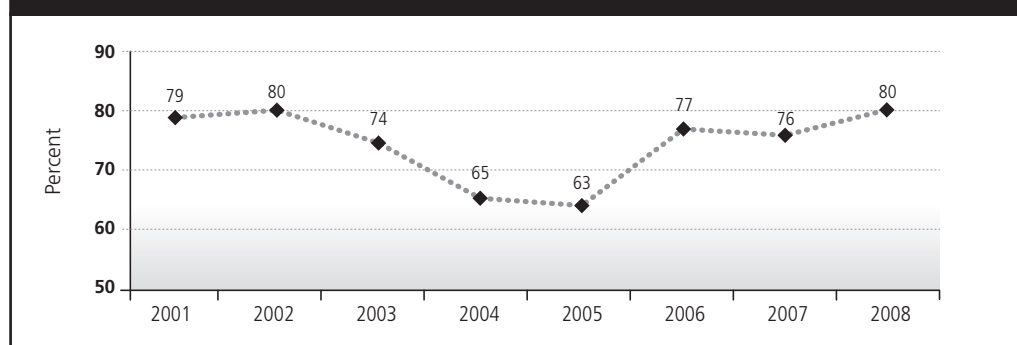
**Table 4.11: Number and Share of VET Exam Candidates, by Test Entered, 2005-08**  
*Number and Percent*

|      | Number of Eligible Candidates | Number of Candidates Entering | Exam Entry Rate (%) | Share who Entered each Exam (%) |                 |                      |       |
|------|-------------------------------|-------------------------------|---------------------|---------------------------------|-----------------|----------------------|-------|
|      |                               |                               |                     | Trade Test                      | CBET Assessment | Business Examination | Total |
| 2005 | 48,889                        | 32,922                        | 67%                 | 71.0                            | 20.0            | 9.0                  | 100.0 |
| 2006 | 58,818                        | 34,665                        | 59%                 | 68.1                            | 22.5            | 9.3                  | 100.0 |
| 2007 | 81,119                        | 34,687                        | 43%                 | 62.2                            | 27.0            | 10.8                 | 100.0 |
| 2008 | 53,818                        | 31,331                        | 58%                 | 62.9                            | 26.2            | 10.9                 | 100.0 |

Source: VETA, 2008.

The global pass rate trend over time (all exams considered) follows a U-shaped curve, peaking at 80 percent in 2008, a value close to that found at the beginning of the period, after having plummeted to 63 percent in 2005 (See Figure 4.20).<sup>103</sup>

**Figure 4.20: VET Pass Rates, for Long Course Tests, 2001-08**  
*Percent*



Source: VETA, 2008.

## ● Technical and Higher Education Learning Outcomes

As for VET, technical and higher education pass rates are insightful, providing a measure of quality, but also of internal efficiency.

*Technical education examination results show a very high level of success.* In 2008 the pass rate averaged 92 percent, ranging from 83 percent for Ordinary and Advanced Diplomas to 95.5 percent at master's degree level (See Table 4.12 below).<sup>104</sup> No marked differences were observed between male and female pass rates, although much fewer girls aim for higher education awards, as discussed earlier (whereas 50 percent of NTA4 qualifications are given to girls, only 32 percent of master's degrees are). The globally good pass rates may be linked to the relatively low number of candidates sitting for the different exams, which indicates that the student population is probably biased in terms of learning skills. Indeed, only the best students will have reached this level. Also, because important costs

are borne by households (see Figure 3.8 in Chapter 3), programme choices tend to be more careful and relevant, and students are under pressure to work harder to succeed from the

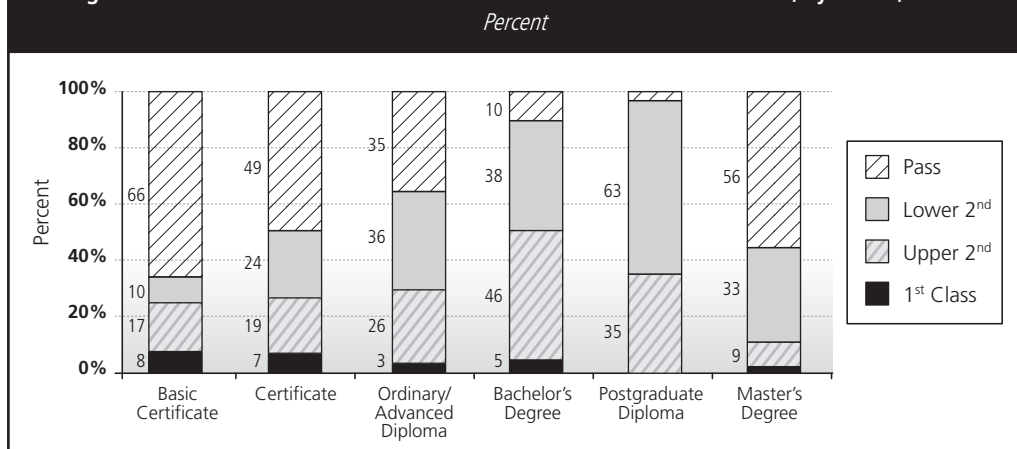
**Table 4.12: Technical Education Examination Finalists, Graduates, and Pass Rates, by Type of Award and Gender, 2008**

|                                       | Finalists |          | Graduates |          | Pass Rate (%) |        |         |      |
|---------------------------------------|-----------|----------|-----------|----------|---------------|--------|---------|------|
|                                       | Total     | % Female | Total     | % Female | Male          | Female | Average | GPI  |
| NTA4 / Basic Certificate              | 1,739     | 50.5     | 1,472     | 51.7     | 82.7          | 86.6   | 84.6    | 1.05 |
| NTA5 / Certificate                    | 2,502     | 49.5     | 2,327     | 50.0     | 92.2          | 93.9   | 93.0    | 1.02 |
| NTA6 / Ordinary and Advanced Diplomas | 8,512     | 37.9     | 7,866     | 38.6     | 82.7          | 82.7   | 82.7    | 1.05 |
| NTA8 / Bachelor's Degree              | 1,320     | 37.2     | 1,244     | 37.8     | 93.4          | 95.7   | 94.2    | 1.03 |
| Postgraduate Diploma                  | 48        | 18.8     | 43        | 18.6     | 89.7          | 88.9   | 89.6    | 0.99 |
| Master's Degree                       | 378       | 32.0     | 361       | 31.3     | 96.5          | 93.4   | 95.5    | 0.97 |
| Total                                 | 14,499    | 41.1     | 13,313    | 41.7     | 90.9          | 93.1   | 91.8    | 1.02 |

Source: NACTE.

Generally few disparities are noted between public and private institutions, with the exception of public technical institutions in terms of bachelor's degrees, with a 16 point pass rate advantage over their private counterparts, at 97 percent and 81 percent respectively (See Annex Table 4.20).

**Figure 4.21: Distribution of Technical Education Examination Pass Scores, by Award, 2008**



Source: NACTE.

Among those who graduated in 2008, a fairly high share (39 percent) obtained the minimum required pass mark, whereas barely five percent reached the highest score (See Figure 4.21). These figures do however conceal variations by type of award, and the share of good results is greater for bachelor's degrees than for the basic certificate. Indeed, most



graduates obtain a first class or upper second class bachelor's. Master's degree results are not as positive: more than half of master's graduates (56 percent) just passed. In general, girls underperform their male counterparts, being relatively more numerous to just pass (45 percent and 35 percent respectively). Private institutions' results are also much poorer than those of public institutions (See Table 4.13).

**Table 4.13: Distribution of Technical Education Pass Results, by Award Type, Gender and Ownership, 2008**  
*Percent*

|                  |         | NTA4<br>Basic<br>Certificate | NTA5<br>Certificate | NTA6<br>Ordinary/<br>Advanced<br>Diploma | NTA8<br>Bachelor's<br>Degree | Post-<br>graduate<br>Diploma | Master's<br>Degree | Total |
|------------------|---------|------------------------------|---------------------|--|------------------------------|------------------------------|--------------------|-------|
| <b>1st Class</b> | Male    | 8.5                          | 8.8                 | 4.1                                      | 5.9                          | —                            | 3.1                | 5.3   |
|                  | Female  | 6.6                          | 5.7                 | 2.3                                      | 3.2                          | —                            | 0.8                | 3.7   |
|                  | Public  | 6.0                          | 8.0                 | 3.4                                      | 0.5                          | —                            | 2.2                | 4.1   |
|                  | Private | 14.3                         | 4.4                 | 4.3                                      | 31.5                         | —                            | —                  | 8.9   |
| <b>Upper 2nd</b> | Male    | 19.9                         | 21.1                | 28.0                                     | 47.9                         | 37.1                         | 11.8               | 27.8  |
|                  | Female  | 14.7                         | 17.7                | 22.9                                     | 44.0                         | 25.0                         | 4.5                | 22.0  |
|                  | Public  | 21.2                         | 21.9                | 27.2                                     | 44.8                         | 34.9                         | 9.1                | 26.8  |
|                  | Private | —                            | 9.5                 | 18.8                                     | 60.1                         | —                            | —                  | 18.0  |
| <b>Lower 2nd</b> | Male    | 9.4                          | 22.7                | 36.6                                     | 39.4                         | 60.0                         | 25.8               | 32.1  |
|                  | Female  | 10.0                         | 25.4                | 33.9                                     | 36.6                         | 75.0                         | 45.1               | 29.4  |
|                  | Public  | 11.9                         | 24.9                | 37.3                                     | 43.1                         | 62.8                         | 32.7               | 33.1  |
|                  | Private | —                            | 9.3                 | 20.1                                     | 7.3                          | —                            | —                  | 12.8  |
| <b>Pass</b>      | Male    | 62.2                         | 47.4                | 31.4                                     | 6.9                          | 2.9                          | 59.4               | 34.8  |
|                  | Female  | 68.7                         | 51.1                | 40.9                                     | 16.2                         | —                            | 49.6               | 44.9  |
|                  | Public  | 60.9                         | 45.1                | 32.2                                     | 11.6                         | 2.3                          | 56.0               | 36.0  |
|                  | Private | 85.7                         | 76.9                | 56.8                                     | 1.1                          | —                            | —                  | 60.3  |

Source: NACTE.

Note: Dark shaded cells denote the greatest share of pupils achieving a given result, usually  $\geq 40$  percent, medium shade denotes 30 to 40 percent of pupils achieving a result, and light shade, a result achieved by 20 to 30 percent.

*Higher Education Examination pass rates also display high success rates for both male and female students.* Excellent examination pass rates were registered in 2008, ranging between 92 percent (Advanced Diploma) to 100 percent (Certificate, Bachelor's, Postgraduate and Doctorate – See Table 4.14 below).<sup>105</sup> Gender disparities in the results are minimal, although relatively fewer girls enroll for the courses leading to the higher level examinations. Again, the limited number of candidates sitting for the awards implies that they are the students with the best skills; and that they have been able to bear the cost of their education implies greater care in the choice of course and a greater study effort.<sup>106</sup>

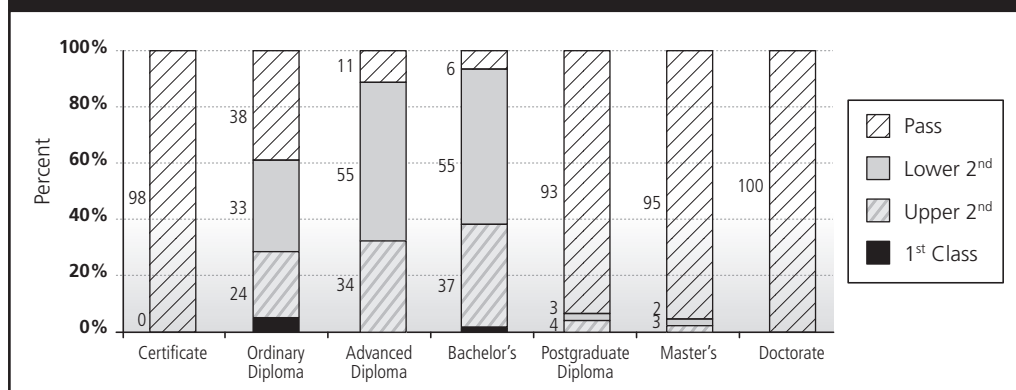
**Table 4.14: Higher Education Examination Finalists, Graduates and Examination Pass Rates, by Award, 2008**  
Number and Percent

|                      | Finalists |          | Graduates |          | Pass Rate (%) |        |         |      |
|----------------------|-----------|----------|-----------|----------|---------------|--------|---------|------|
|                      | Total     | % Female | Total     | % Female | Male          | Female | Average | GPI  |
| Certificate          | 662       | 50.5     | 658       | 50.5     | 99.4          | 99.4   | 99.4    | 1.00 |
| Ordinary Diploma     | 233       | 46.8     | 223       | 47.5     | 94.4          | 97.2   | 95.7    | 1.03 |
| Advanced Diploma     | 90        | 26.7     | 83        | 25.3     | 93.9          | 87.5   | 92.2    | 0.93 |
| Bachelor's Degree    | 6,008     | 40.1     | 5,991     | 40.1     | 99.7          | 99.8   | 99.7    | 1.00 |
| Postgraduate Diploma | 213       | 32.9     | 213       | 32.9     | 100.0         | 100.0  | 100.0   | 1.00 |
| Master's Degree      | 680       | 35.3     | 676       | 35.4     | 99.3          | 99.6   | 99.4    | 1.00 |
| Doctorate            | 37        | 24.3     | 37        | 24.3     | 100.0         | 100.0  | 100.0   | 1.00 |
| Total                | 7,923     | 40.4     | 7,881     | 40.4     | 99.4          | 99.5   | 99.5    | 1.00 |

Source: TCU: Based on a subsample of 13 universities.

In terms of performance, most graduates fare poorly, just passing, with the exception of bachelor's degree and postgraduate diploma students, over 80 percent of whom achieve a second class degree (See Figure 4.22).

**Figure 4.22: Distribution of Higher Education Pass Scores, by Award type, 2008**  
Percent



Source: TCU: Based on a subsample of 13 universities.

Although girls tend to perform less well at the lower awards, they outperform boys at master's degree level (See Table 4.15 below).

**Table 4.15: Distribution of Higher Education Pass Scores, by Award Type and Gender, 2008**  
Percent

|                      | 1st Class  |            | Upper 2nd   |             | Lower 2nd   |             | Pass        |             |
|----------------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                      | Male       | Female     | Male        | Female      | Male        | Female      | Male        | Female      |
| Certificate          | 0.6        | 0.9        | 0.3         | 0.3         | 0.3         | 0.6         | 98.8        | 98.2        |
| Ordinary Diploma     | 5.1        | 4.7        | 28.2        | 19.8        | 35.9        | 29.2        | 30.8        | 46.2        |
| Advanced Diploma     | —          | —          | 33.9        | 33.3        | 59.7        | 42.9        | 6.5         | 23.8        |
| Bachelor's           | 2.2        | 1.4        | 38.9        | 34.6        | 53.1        | 58.1        | 5.7         | 5.9         |
| Postgraduate Diploma | —          | —          | 3.5         | 4.3         | 2.8         | 2.9         | 93.7        | 92.9        |
| Master's             | 0.2        | —          | 1.1         | 5.0         | 0.2         | 6.3         | 98.4        | 88.7        |
| Doctorate            | —          | —          | —           | —           | —           | —           | 100.0       | 100.0       |
| <b>Total</b>         | <b>1.9</b> | <b>1.3</b> | <b>31.1</b> | <b>27.5</b> | <b>42.4</b> | <b>45.8</b> | <b>24.7</b> | <b>25.4</b> |

Source: TCU: Based on a subsample of 13 universities.

Cost-sharing and public-private partnership policies both respond to efficiency concerns (the relevancy of course choice; good study efforts by students) and promote greater equity, by liberating public resources in favor of basic education, attended by the greater proportion of pupils from low socioeconomic backgrounds. The policies appear to be effective at both the technical and higher education levels.

## KEY FINDINGS

This chapter has addressed two aspects of quality. First, the internal efficiency coefficient, a measure synthesizing the effectiveness in the use of education resources invested in producing a school 'graduate', on the basis of dropout and repetition rates. Secondly, learning achievements and skills' acquisition, measured by standardized tests (SACMEQ) and national examinations.

*Internal efficiency in Tanzania is generally good compared with other countries in the region, but drops at successive levels.* At the primary level, the internal efficiency coefficient was estimated at 88 percent (meaning that 12 percent of resources were wasted on dropout or repetition). Dropout remains the main source of inefficiency; this is particularly true at O-Level and A-Level, which registered lower IECs, of 81 percent and 72 percent respectively. Efforts are necessary, in a context of scarce resources, to reduce secondary level dropout to improve the overall internal efficiency of the system, and reduce related resource wastage. On the other hand, repetition remains low at just 2.4 percent in primary, and below two percent in secondary levels, well below regional averages, as the result of a positive policy choice.

*The available data show that basic education quality should remain a major concern for educational authorities.* Indeed, although the dynamic of learning outcomes' improvement observed in primary education between 2000 and 2007 is very encouraging, learning achievements remain somewhat modest by international standards.

*National examination pass rates are dropping, and the results of those who graduate are of low standards, especially at primary and O-Level.* In 2009, barely 50 percent of PSLE candidates passed the exam, a sharp reduction since 2006 when 70 percent of the candidates expected to graduate. This deterioration could be partly explained by the relative increase in the access of students with learning difficulties following the implementation of the fee-free primary education policy, but also by deteriorating schooling conditions such as rising PTRs and the lack of textbooks (See Chapter 7), and potentially by the more strict secondary school access criteria, following a considerable rise in the number of primary school leavers, from 85,550 to 493,333 over the period. In addition to the large proportion of fails in all core PSLE subjects (and especially in mathematics and English), the distribution of scores is skewed toward Grade C, which further stresses the general low level of performance of most candidates.

*At O-Level, strikingly poor results are achieved in community schools, which enroll the majority of students.* The O-Level share of graduates is declining, and reached 66 percent in 2009. Mediocre results prevailed, skewed toward Division IV (minimum level) for 81 percent of graduates; performance was particularly poor in mathematics and sciences; and private candidates systematically underperformed. The bad results of students from community schools is of much greater concern however, given that today they educate a sizeable number of O-Level students and represent the pillar of MoEVT's policy to increase secondary school access. More analyses are required to adequately assess O-Level quality issues, for which improved EMIS data will first be required.

*At A-Level, the situation is generally better, although pass rates have fallen slightly, leveling off at 89 percent in 2009.* Variations in performance exist: school candidates systematically outperform private ones, both in quantity (their respective pass rates were 93 percent and 74 percent in 2009), and in quality (12 percent and 38 percent only reached the minimum level, respectively). Half of school candidates score a Division III grade, a quarter scores a Division II grade and 14 percent a Division I grade, a result almost never attained by private candidates. Here again, few gender disparities exist. The globally good scores could be linked to the fact that only the best and most fortunate students were able to reach A-Level. Implementing mechanisms to adequately monitor learning outcomes will prove important; especially given the rising number of O-Level graduates to be catered for over the coming years, and the introduction of the new A-Level curriculum in 2010.

In vocational education and training, 78 percent of VET long course students completed their year in 2008; 58 percent entered an exam, 80 percent of whom passed. Few gender variations were apparent.

*Technical education and higher education examination results show very high level of success (above 82 percent).* No gender differences are apparent in success rates or the quality of results, although relatively fewer girls sit higher examinations, and their participation drops the higher the award involved. The basic issue at stake is one of girls' enrollment and retention through their schooling careers. The low numbers of candidates sitting the exam implies that those who do are the best performers, and the most financially able. The fact that many students bear the cost of their studies (through loans) has encouraged greater care in the choice of courses, and greater responsibility in learning. Cost-sharing and public-private partnership policies are successfully addressing both the issue of efficiency, and that of equity (liberating public resources for the pro-poor basic cycles through the abolition of school fees).

The objective that all children should achieve acceptable levels of learning is still elusive. At both primary and O-Level, disparities in results exist according to gender, wealth and area of residence. Although the analysis of SACMEQ scores over 2000-07 shows that disparities are narrowing, it also pinpoints that: (i) the poorest children's performance is starkly below that of their wealthier peers; and (ii) disadvantages tend to be cumulative: poor rural girls perform the worst. Girls underperformance at CSEE is of particular concern.

Raising the quality of the basic education system will require a multipronged strategy given the diversity of challenges faced (See Table 4.16 below, offering an array of potential measures), based on the factors that were found to have a significant impact on learning. Further study and analysis of learning outcomes will first be required however. Unfortunately, the lack of adequate data on learning outcomes and the school/class environment has strongly limited the scope of the analyses, preventing the identification of clear and effective policy options to improve the management of education quality, especially at the secondary level.

**Table 4.16: Potential Measures to Improve Basic Education Learning Achievements, and their Related Impact and Cost**

|   | Primary |                  | O-Level |                  |
|---|---------|------------------|---------|------------------|
|   | Impact  | Cost             | Impact  | Cost             |
| Increase student learning time                    | ++      | \$ (1)           |         |                  |
| Set up remedial classes to reduce repetition      | +++     | \$               |         |                  |
| Promote preschool attendance                      | ++      | \$ to \$\$\$ (2) |         |                  |
| Support poorer children                           | ++      | \$ to \$\$\$ (3) |         |                  |
| Involve communities in school management          | +++     | \$               |         |                  |
| Favor girls' education activities                 | +++     | \$               |         |                  |
| Upgrade teachers' qualifications to set standards | ++      | \$ to \$\$ (4)   | +++     | \$ to \$\$ (4)   |
| Provide students with textbooks in key subjects   | +++     | \$               | +++     | \$               |
| Improve the coherence of teacher allocation       |         |                  | +++     | \$ to \$\$\$ (5) |
| Equip schools with latrines                       |         |                  | +++     | \$\$             |

Source: Synthesis of Tables 4.5 and 4.8.

Note: + Low impact, ++ medium impact, +++ high impact; \$ low cost, \$\$ costly, \$\$\$ very costly. The level of impact has been assessed based on the regression results; the level of cost is based on estimated unit costs.

*Building a national student learning assessment system is becoming crucial.* Implementing such a mechanism will prove even more important in the current context of curricula changes and decentralization. A good quality assessment system should, among others, be able to track information on exam results (including scores by subject) on a student by student basis, and link the data to past performances in previous exams, and to current school/class inputs. Indeed, if CSEE results could be linked to PSLE and Form 2 exam scores, each school's performance could be clearly identified, facilitating the management of education quality. Information does exist; it must be made compatible. Setting clear benchmarks at early grades for core learning acquisitions (especially in mathematics and literacy) will help both teachers and parents to assess and monitor pupils' progress and weaknesses, and enable timely remedial measures.

Other issues, such as the use of English as the main teaching language in secondary education could also be reviewed in favor of a more gradual approach to phasing in English throughout schooling careers, to ensure that students master the language adequately by the level they are expected to use it to learn. Indeed, a balance is required between adequately educating the majority of youth, ensuring they have the right skills to play significant roles in society, and ensuring that the country has the required human capital and high-level skills to be internationally competitive.

Last but not least, these results highlight the need to question aspects pertaining to education management, by looking more specifically at: (i) administrative management, and the allocation of resources (human, material and financial) among central, decentralized and school levels; and (ii) pedagogical management, and the transformation, at the school level, of the resources allocated into student learning achievements. Indeed, the classroom context appears to conceal some answers. These two aspects will both be reviewed in Chapter 7 on management.

## Notes

- 61 This approach is the one proposed by the EFA goal on quality.
- 62 However, education quality is not only a factor of learning achievements; other dimensions should be considered (socialization, citizenship, and so on) to provide a comprehensive view of the concept of quality, but unfortunately they tend to be much more difficult to measure.
- 63 Nevertheless, this approach remains quite challenging, due to important data limitations. In particular, robust analyses of factors affecting learning achievements require specific data which are not currently available.
- 64 Indeed, evidence shows that a minimum of six years of formal primary schooling are required for a person to become and remain literate.
- 65 Dropout and repetition related coefficients are also useful to portray the magnitude of wastage. They are computed as follows: the numerator of the dropout-related coefficient includes only student-years associated with dropout, and the numerator of the repetition-related coefficient includes only student-years associated with repetition. The overall coefficient (the IEC, the product of the 2) takes into account the student-years associated with both. A perfectly efficient education system with no dropout and no repetition would have a coefficient of 100.
- 66 Data from 2007 was used because the 2009 data is strongly affected by the multicohort phenomenon that tends to underestimate dropout.
- 67 The model is based on a logistic distribution, including variables of age, highest grade completed, gender, location (urban/rural) and wealth. The analysis was performed on individuals aged 22 to 44 years, to ensure that the sustainable dimension of literacy was grasped: it assessed the literacy skills of individuals having completed primary education between 13 and 35 years ago. As such, the analysis in fact assesses the effectiveness of the primary education system between 1975 and 1997.
- 68 To allow for regional comparisons, the probability of being literate is computed for six years of formal schooling.
- 69 See [www.necta.go.tz](http://www.necta.go.tz)
- 70 Grades A (81-100 percent), B (61-80 percent) and C (41-60 percent) constitute a pass; D (21-40 percent) and E (0-20 percent) constitute a fail. 100/250 points is equivalent to 40 percent, a lower C grade.
- 71 In some district councils the pass mark was raised due to the lack of available O-Level places.
- 72 This is not specific to Tanzania; the issue is inherent to the nature of the tests, and is faced worldwide.
- 73 SACMEQ uses standardized methods/tests that allow for geographic (both cross-country and national) and historical comparisons. Marking is adjusted to reach an average of 500. Another interesting feature of SACMEQ data is that student skill levels can be assessed. There are eight skill levels for each subject area. Levels are hierarchical and enable to assess the competencies that students have or have not acquired. See Annex Table 4.7 for the detailed learning achievements associated with each level of performance.
- 74 Reading is in Kiswahili, the primary level teaching language.
- 75 It is now widely recognized that learning process is more fluid when the mother tongue is used as the teaching language.
- 76 The PIRLS is an ongoing assessment of the reading comprehension of students in their fourth year of schooling, conducted in various countries around the world since 2001. The 2006 round was the second. Scores range from zero to 1,000; the average is fixed at 500 with a standard deviation of 100. According to the PIRLS international benchmark, scores below 400 indicate "low literacy," as pupils can only "retrieve explicitly stated details from literary and informational texts." (Baer et al., 2007).
- 77 The TIMMS is used to measure the mathematic and sciences knowledge and skills in Grade 4 and 8 students. The 2007 round was the fourth, since 1995. Scores range from zero to 1,000; the average is fixed at 500 with a standard deviation of 100. Scores below 400 indicate that students have "some knowledge of whole numbers and decimals, operations and basic graphs" (Gonzales et al., 2009). (Gonzales et al., 2008).
- 78 Uwezo, meaning "capability" in Kiswahili, is a four-year initiative to improve competencies in literacy and numeracy among children aged five to 16 years in Kenya, Tanzania and Uganda through an innovative, civic-driven and public accountability approach to social change" (<http://www.uwezo.net>). The baseline survey covered a sample of 42,033 children from 22,800 households selected randomly from 38 of the 133 districts. The tests in English, Kiswahili and mathematics are based on Standard II requirements.
- 79 The question of methodology (sample, instrument used to assess learning outcomes) should not be discarded as it heavily influences the outcomes observed. In addition, because no historical data are yet available with the Uwezo study, dynamic analyses can not be performed.
- 80 Further SACMEQ data disaggregated by gender, socioeconomic group, location and region is gathered Annex Tables 4.8 and 4.9.
- 81 Gaps between male and female are significant only for the minimum level in math.



- 82 Such analyses intend to grasp the net effect of each factor, by maintaining all other factors constant, and normalizing scores through the standard error approach. Results are measured in units of standard error.
- 83 Studies have demonstrated that students' level of learning at the beginning of the school year is the key determinant of their achievement. Unfortunately this information is not available in SACMEQ data. For that reason, the variables of student achievement included in the model explain only 14 percent of the total variance in reading scores and 13 percent of the total variance in mathematics scores.
- 84 Girls' scores are 18.6 units of standard deviation lower than boys', on average.
- 85 The Public Expenditure Tracking Survey (Claussen and Assad, 2010) estimated the share of absent teachers at less than 10 percent in half of the 26 district councils surveyed, at above 10 percent in 13 councils, and above 20 percent in three councils.
- 86 PASEC is the Program on the Analysis of Education Systems of the CONFEMEN (See Acronyms).
- 87 At the country level, studies by Mingat and Sosale (2001) and Pôle de Dakar (2002) show that the practice of repetition increases dropout rates during the cycle, and remains the main obstacle to reaching universal primary education. Families feel that children obliged to repeat are unsuccessful and do not benefit from school. As opportunity costs always constitute an argument against school attendance, the perceived sanction of repetition encourages parents to take their children out of school. Mingat and Sosale estimate that one more percentage point of repeaters results in a 0.8 percentage point increase in the dropout rate. They also show that these negative impacts are even stronger among population groups whose demand for schooling is lower (girls, children from disadvantaged economic backgrounds). For girls, the effect of one more percentage point is estimated at a 1.1 percentage point increase in the dropout rate. The results of analyses at the school level are similar. In Chad for example, one more percentage point of repetition is related, all other factors being equal, to a survival rate 0.53 percentage points lower (Chad CSR). At the individual level, studies also confirm this trend: in Senegal the decision that Grade 2 students should repeat a year increases their risk of dropping out at the end of the year by 11 percent (PASEC, 2007).
- 88 Growing evidence tends to show that increased accountability at the school level tends to be associated with improved learning outcomes (see Bruns et al., 2011).
- 89 Some evidence, reaffirmed in Maaigard and Mingat, 2011, favors an approach of short preservice training combined with more in-service training, to enhance student learning. While long preservice trainings are costly and not always well targeted to teachers' future needs, they tend to overload TTCs and limit the number of potential trainees.
- 90 For example, the initial training of teachers appears to have a positive coefficient when the duration is three years or more. Without controlling for pupils' learning levels at the beginning of the year, one cannot say whether this result is due to the effectiveness of the trained teachers or to the fact that the best trained teachers work in the best schools, with the best pupils. Such limitations in the interpretation of results are common among all variables.
- 91 CSEE candidates are awarded an overall grade called a division. Divisions I, II, III and IV constitute a pass (Division I is the best result), and Division 0 constitutes a fail. The division given to a student depends on the number of passes obtained in seven subjects. Each subject is given a grade from A to D (passes; A is the best result), or a fail. Grades A to C constitute a credit.
- 92 Because repetition of Forms 4 and 6 is no longer allowed, students who fail the exam and wish to resit can register as private candidates.
- 93 Data include Zanzibar, as it was not always possible to distinguish between mainland and Zanzibar results. Yet in 2009, Zanzibar candidates accounted for 8.2 percent of the total. Disaggregated data for 2009 shows that in Mainland Tanzania 311,884 candidates sat for the exam in 2009; 231,610 as school candidates and 80,874 (26 percent) as private ones (DSE, 2010).
- 94 The CSEE pass rate is: Number of candidates who score a Division I to IV / Total number of students who sat for the exam. In NECTA documents and analyses the denominator excludes those students whose results were withheld. As a result, the pass rates in this report are lower than NECTA's by a few percentage points.
- 95 Figures in Figure 4.15 have been rounded. In fact 0.2 percent (118 students) achieved above a Division IV in 2009.
- 96 Regional disparities are detailed in Annex Table 4.14, showing 2009 pass rates that vary between 51 percent in Lindi region to 82 percent in Iringa region. Tanga, Dodoma, Kigoma and Mtwara regions are also performing particularly poorly, with pass rates below 60 percent, whereas Kilimanjaro, Arusha, Mbeya, Rukwa and Mwanza regions have pass rates above 75 percent.
- 97 Potential interventions were also discussed to improve overall student performance, involving all education actors, from students to PMO-RALG staff, including teachers, head teachers, district education officers, NECTA and the Tanzania Institute of Education. Although the opinions voiced are interesting, they are not precise enough (they lack supporting evidence) to clearly identify policy priorities and explain the strong disparities observed.

- 98 School-level NECTA CSEE files and school-level EMIS data were merged for year 2009 to conduct this analysis. Not all NECTA and EMIS data could be reconciled, due to the fact that not all schools could be found in one or the other file. In addition, the quality of EMIS data was a constraint, as not all variables were adequately recorded. Considering these limitations, the dataset obtained covers 1,312 schools out of 2,359 (all school types considered).
- 99 A separate model run for central government and district council schools shows that the same variables (PTR, qualified teachers, latrines and books) have significant impacts on pass rates. As Annex Table 4.16 also shows, the government and community schools sampled are less well endowed than private schools in terms of the educational inputs that have a significant impact on results.
- 100 ACSEE data in this section includes Zanzibar, as it was not always possible to distinguish from the mainland.
- 101 The pass rate is: Number of candidates who score Division I to IV / Total number of candidates. In NECTA documents and analyses the denominator excludes students whose results were withheld. As a result, the pass rates computed here are lower than those of NECTA by a few percentage points.
- 102 For vocational education, the data does not enable the computation of pass rates, but shows the proportion of students completing each year.
- 103 These trainings being vocational, learners' performance on the labor market is also of interest (See Chapter 6 on external efficiency).
- 104 Data were only available for 2008.
- 105 Data on examination results for higher education are only available for the 2008/09 academic year, for a subsample of 13 universities. Annex Table 4.21 details the number of candidates who sit and pass the different exams, by institution.
- 106 The cost of university is often borne by taking out a student loan. This tends to favor greater efforts in studying than in a system where grants are provided to students, such as in many francophone countries.