



IMPROVING THE QUALITY OF BASIC EDUCATION FOR THE FUTURE YOUTH OF YEMEN POST ARAB SPRING

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Abstract:

This paper looks at the issue of the quality of education in Yemen. It uses micro-data from TIMSS and from surveys conducted in underserved rural areas, as well as macro-level policy information from the System Assessment for Better Education Results (SABER) database. The analysis indicates that the availability of teachers and resources at schools, the monitoring and supervision of schools and parental involvement in schooling are important factors for better learning outcomes and avoiding trade-offs between expansion of enrollment and quality of learning. The paper suggests three types of reforms that can be carried out in the short run. First, it is necessary to systematically monitor teachers' actual deployment and attendance in order to link the information with salary management and incentives. Second, there is a need to refine and scale up the existing implementation and monitoring mechanism for school grants to reward schools and communities that improve access for disadvantaged students and girls, and enhance the quality of learning. Third, there is a need to enhance transparency and accountability of school resources and results by disseminating a simple database that would include trends of basic indicators to monitor and compare progress at the school, district and governorate level.

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OVERVIEW OF EDUCATION ISSUES

During the Arab Spring protests in the Middle East and North Africa (MENA), the population wanted – and achieved – a regime change. This energy now needs to be transformed into substantive voices that ensure and help the new government to formulate and implement policies that can solve issues for the better results that their people want. For informed dialogue between the government and its development partners, this paper analyzes the issues in the quality of basic education, which is a foundation of developing knowledge and skills to meet and foster job opportunities.

Jobs are among the top priorities for Arab youth. The unemployment rate in the MENA region is among the highest in the world, especially among youth, and the duration of unemployment is worrisome.¹ The number of jobs is not growing and the majority of private sector jobs are still in the informal sector, especially in Yemen (Angel-Urdinola and Tanabe 2012). As the number of youth grows in Yemen, competition for public sector jobs will increase, making it difficult for people to obtain such employment (Assaad et al. 2009).

Human resource development is an important factor to foster private sector businesses along with other factors, along with business regulatory environments and (micro) finances. What are the key issues in human resource development in the MENA region? The first issue is the relevance of education and skills to the labor market. Overall Arab countries have succeeded in increasing the supply of their educated labor force through expansion of education services. During the last decade from 1999 to 2010, the MENA region (all income levels) increased, on average, the gross enrollment ratio from 97 percent to 104 percent in primary education, from 68 percent to 77 percent in secondary education, and from 22 percent to 31 percent in tertiary education.² However, a share of firms still report skill shortages as a major constraint in the region.³ These shortages call for continuing the commitment to expanding education services while increasing attention to the relevance of education. The education sector needs to produce types and levels of competency and skills that are demanded by the labor market. Policies should address the training of skills that will help adolescents meet the challenges of the 21st century⁴ and mechanisms to improve the transition from the education system to the labor market. Yemen, which has not yet caught up with other MENA

countries in the development of either education services or private firms also needs to prepare for the future skill demand.

Second, the quality of basic education, which affects the trainability of youth and thus impacts the relevance of education, is also the common underlying issue in the region. Growing evidence on learning achievement confirms the existence of quality issues within the education sector. For example, not only Yemen, but all of the 13 Arab countries that participated in the Trends in International Mathematics and Science Studies (TIMSS) scored significantly lower than the TIMSS scale average of 500 in 2007, either in Grade 4 or 8.⁵ (Mullis et al. 2008). The 2011 TIMSS results also indicate more or less the same issue (Mullis et al. 2012). All of the nine Arab countries that participated in the 2011 Grade 4 assessment are ranked among the bottom 10 countries on the country average math scale. The Arab region's common concern with students' learning is also underscored by the Doha Declaration on Quality of Education in the Arab World in 2010.⁶ Insufficient mastering of basic reading and numeracy can have negative effects on skills learning in technical and vocational education and training (King 2011).

Furthermore, inequity in access remains a potential obstacle to improve the quality of learning for those already enrolled unless the amount and/or efficiency of the public budget is increased. In particular, the situation is challenging for Yemen. While the country increased the net enrollment rate (NER) in primary education from 57 percent in 1999 to 78 percent in 2010,⁷ much effort is required to achieve the international target of 100 percent net enrollment and

the national compulsory basic education policy,⁸ particularly for girls and rural children. Yemen's female enrollment rate is below even that of many other low-income countries. The primary school net attendance rate for girls is estimated 53 percent in rural and 80 percent in urban areas (Ministry of Health and Population and UNICEF 2008: 100) and the primary education completion rate for boys and girls is 42 percent in rural areas in 2006.⁹ The availability and quality of learning resources tends to be lower in rural schools. Given the tuition-free policy and the low share of private primary schools,¹⁰ effective public finance management is key to improving quality access and achievement for all and thus ensure the trainability of future youth inclusively. In fact, as Table 1 shows, Yemen spends a comparable amount on education with other countries in terms of total education expenditure (5 percent of GDP in 2010) and expenditure per pupil in primary education (18 percent of GDP per capita in 2011), although there is a decline in the total education expenditure when compared with the early 2000s (9 percent of GDP). Overall public sector governance was considered weak for Yemen as well as other MENA countries (World Bank 2003; World Bank 2009).

This paper will focus on the challenges of improving the quality of education in Yemen, which also needs to rapidly increase access to education for the underserved children at the same time. The next section analyzes the country's education results in terms of learning outcomes and factors correlated to the results. The third section analyzes the quality of its basic education policies and governance to identify the issues and reform areas towards a better education result. The last section provides policy implications.

Table 1: Public Education Expenditure and Primary Enrollment Rate, Selected Countries, 2010					
Indicators	Yemen	Senegal	Ghana	Vietnam	Lao
Public Expenditure on Education as % of GDP	5.2 ^{a)}	5.6	5.5	5.3 ^{a)}	3.3
Public Recurrent Spending on Total Education as % of Total Public Recurrent Spending	16.0 ^{a)}	45.8 ^{b)}	n/a	n/a	11.4 ^{b)}
Public Expenditure per Pupil as a % of GDP per Capita (Primary)	18.2 ^{b)}	16.4	11.4	19.4 ^{a)}	n/a
Net Enrollment rate (Primary, Total)	77.6	75.5	84.0 ^{b)}	98.0	96.8
Net Enrollment Rate (Primary, Female)	70.0	77.7	84.4	n/a	95.4
Gender Parity Index for Net Enrollment Rate (Primary)	0.83	1.06	1.01	n/a	0.97
GDP per Capita (Current U.S.\$)	1,291	1,034	1,319	1,224	1,158

Notes: Most data from 2010 with exceptions for ^{a)} 2008, ^{b)} 2011.

Source: World Bank online data, UNESCO Institute for Statistics online data, accessed December 2012. Global Partnership for Education, 2012: 283,310, and Education for All Fast Track Initiative, 2010: 87.

EDUCATION RESULTS AS LEARNING OUTCOMES

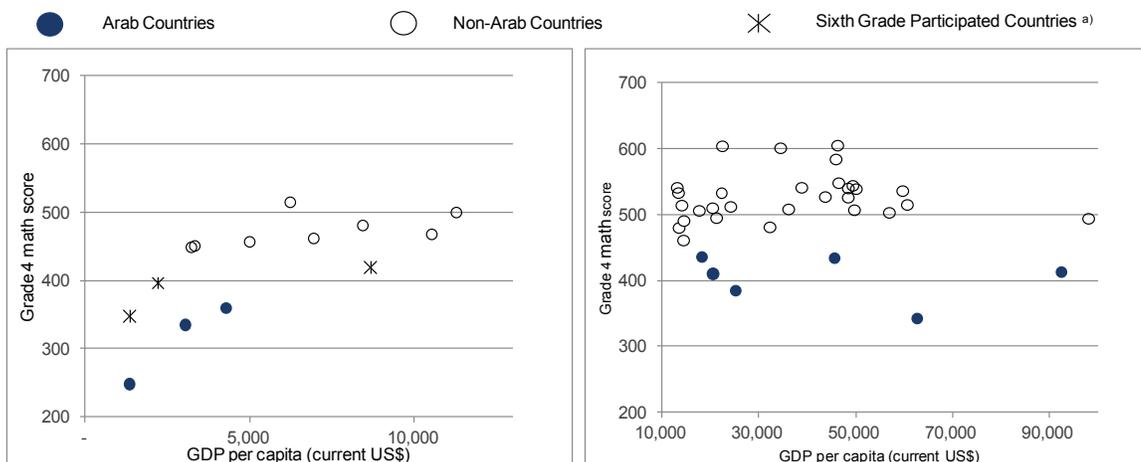
Low Quality in Yemen Compared to Other Countries

Growing evidence indicates that Yemen, as well as the other Arab countries, need to improve education quality outcomes. The Trends in Mathematics and Science Study (TIMSS), a large-scale international educational assessment, indicates a relatively low level of student achievements in the region. As Figure 1 shows, all nine participating Arab countries, that are either low- or high middle-income countries, perform far below the international TIMSS scale average of 500 in the Grade 4 mathematics exam in 2011. Yemeni achievement was marked at the lowest among participating countries while the country's economic level is also marked as the lowest. Yemen also assessed its Grade

6 students in the Grade 4 exam in 2011. Although the achievement for the Grade 6 students is still low, it is above the average achievement of the Grade 4 students in Yemen (Mullis et al. 2012). Cross country comparisons show that that the Yemeni score is not high even compared with other low and lower middle-income countries, although there are only small differences (see Figure 2). However, such results should be used cautiously because of their methodological limitations (Altinok 2010).

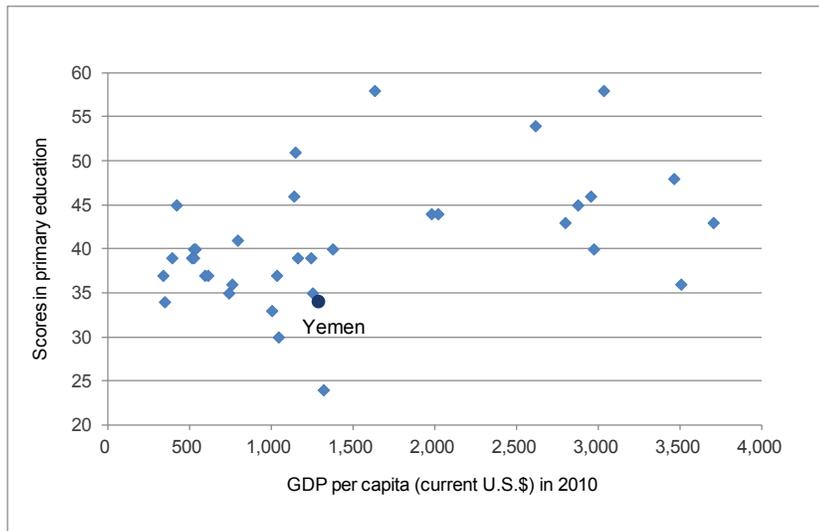
On gender difference, Grade 4 girls outperform boys on the TIMSS mathematics assessment in all but one of the participating Middle Eastern countries (Ezzine et al. 2011). Yet, girls' performance is still low as is also the case in the 2011 TIMSS assessment. The TIMSS also highlights quality issues not only in math or science, but also in reading. For Yemen, while about

Figure 1: Mathematics Achievement in Middle-Income and High-Income Countries, 2011



Note: a) Three countries participated at sixth grade, those are: Botswana, Honduras and Yemen. b) Countries classified based on GDP per capita (current US\$) of 2011. Only for Bahrain, the data on 2010.
 Source: TIMSS 2011; GDP per capita (current US\$) from World Bank online data, accessed December 2012.

Figure 2: Score in Primary Education and GDP per Capita in Low and Lower-Middle-Income Countries



Source: Global Partnership for Education, 2012 (original from Altinok, 2010). World Bank online data for GDP, accessed December 2012.

40 percent of the 2007 test items were covered by the curriculum, the less than half of the responses were correct due to the literacy problem (Al-Mekhlafy 2009: 85). The literacy problem also appears to be an issue for the other Arab countries. In her analyses of the 15 MENA countries that participated in TIMSS 2003 or 2007's Grade 8 test, Bouhlila (2011) emphasizes language ability as the most serious issue.

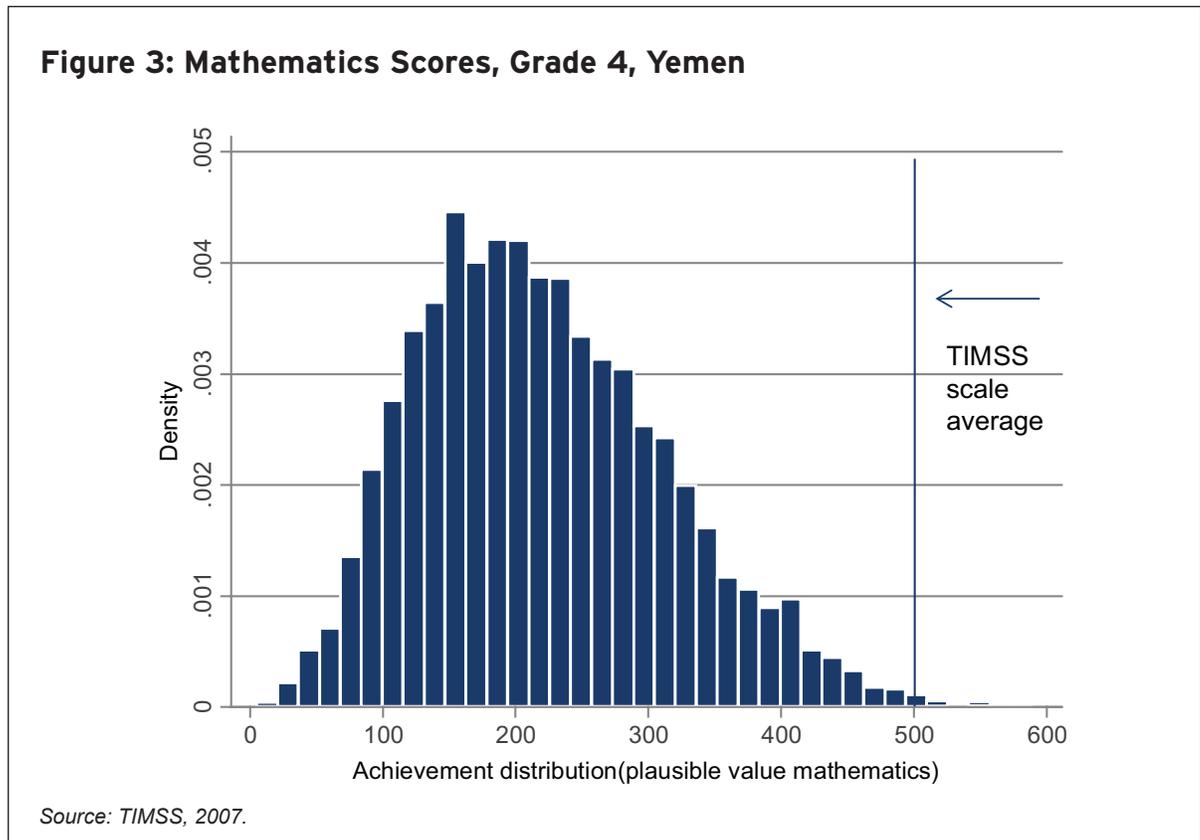
New information on understanding the status of language acquisition is becoming available globally through the Early Grade Reading Assessment (EGRA), which is implemented in a set of oral assessments in many developing countries (Gove and Cvelich 2011). In Yemen, the EGRA assessed students in 40 schools in three governorates and found that the proportions of students who were not able to read a single word

(i.e. scoring zero in oral reading fluency) were 42 percent for Grade 2 and 27 percent for Grade 3 (Collines and Messaoud-Galusi, 2012: 2). Among students who could read at least one word, their rates of reading words per minute is less than one-quarter of the recommended rate for adequate comprehension, and they accurately read approximately half of the words attempted. In Morocco, with a similar method, 34 percent of Grade 2 students and 17 percent of Grade 3 students were unable to read any words in a narrative text of 58 words (Messaoud-Galusi et al. 2012: 36). To improve reading instruction in early grades in Yemen, there is a need to improve the provision of reading materials, parental involvement in schooling, and teacher training on basic components of reading that should begin in Grade 1.

Within-Country Differences and Correlated Factors

As shown in Figure 3, while the majority of Grade 4 students are below the TIMSS international scale of 500, there is still variation among the students. Al-Mekhlafy (2009) compares the average scores between students grouped by various pupil-related teaching, and school-related variables to find possible determinants of student scores. He finds that the gender of students and class sizes are significantly related to performance, while qualification and experience of teachers have mixed implications partly because many younger (thus less experienced) teachers tend to have higher education.

The class size or student-to-teacher ratio (STR) are internationally recognized as important factors affecting the quality of education, and therefore it is important to see how they have evolved in Yemen. Empirical results provide mixed implications on the effectiveness of smaller class sizes or STR, depending on the countries' contexts (e.g., either developing or developed countries), the grades of students and teacher quality. Some studies point out that students' learning achievement in developing countries may have been lowered by the steep increase in access to basic education (e.g., UNESCO 2011; Hungi et al. 2010) and by a high ratio of students to less qualified teachers. In fact, the Yemeni data indicate a notable

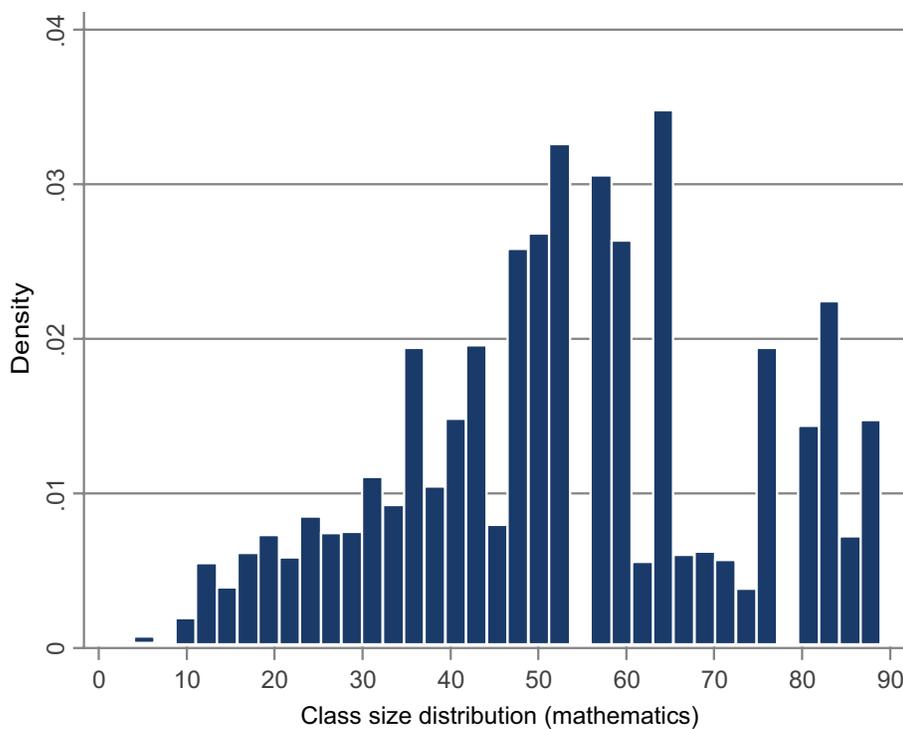


increase in STR in primary education over the last decade from 22 in 2000 to 31 in 2010, which is higher than many countries in the region, as shown in Table 2. This increase of STRs is good news for the efficiency of public resources as it is moving towards the indicative target of 35, set in the early 2000s for the year 2015 by the Fast Track Initiative plan¹¹ towards universal primary education (Government of Yemen and World Bank 2004). However, the increase of the average STR can have some implication in a decrease of quality of teaching, especially if teachers who are less qualified need to teach a larger number of students whose learning readiness also varies more due to the increased access of disadvantaged children.

One should also note that the actual class size can be higher than the STR: The average is not a maximum number. The TIMSS 2007 shows that Yemen's average class size for Grade 4 mathematics is 46 students, almost the double of the international average of 26 students (Mullis et al. 2008: 268-9). The class sizes vary greatly among the sample schools of Yemen (Figure 4), and the standard error is large relative to the other countries.

Built on the descriptive analyses of Al-Mekhlafy (2009), we prepared a statistical estimation model to further assess the factors that are correlated to student achievements in Yemen. We adopted the

Figure 4: Distribution of Class Size, Grade 4, Yemen



Source: TIMSS, 2007.

Table 2: Student to Teacher Ratio and Population Density, Selected Countries			
	Student to Teacher Ratio Primary Education		Population Density (per sq.km)
	2000 or circa	2010 or circa	2010 or circa
Yemen	22	31	46
Egypt	23	26	81
Jordan	20	-	68
Morocco	29	26	72
Tunisia	23	17	68
Ghana	34	31	107
Lao PDR	30	29	27
Senegal	51	34	65
Vietnam	30	20	280

Source: Source: World Bank online data, accessed December 2012.

production function approach (e.g., Hanushek 1995; Fuller and Clarke, 1994). As Table 3 shows, the ordinary least squares (OLS) estimation results of the 2007 TIMSS Yemeni scores¹² indicate that the class size is significantly and negatively associated with student achievements, even after controlling for urban-rural differences. The negative effect of a larger class size also tends to increase when associated with lower educational qualification of mathematics teachers.¹³ Yet, lower teacher qualification alone is not significantly associated with student achievements. Our estimation indicates a significantly negative association between school director's perceptions on the shortage of school buildings with learning performances. Parental involvement, measured as whether a school asks parents to raise funds for the school, has a significant and positive association. Although basic education is tuition free, given the shortages of school amenities funded by the government, parental contributions could have made a practical difference

among schools. Great attention needs to be paid to the relatively poor communities where such contributions are less feasible.

More recent data of rural schools also indicates the associations of various supply-side factors and parental involvement to student achievements. Table 4 shows the OLS estimation results of mathematics scores with data collected in 2011 from schools in underserved areas of Dhamar governorate, where the Gender Parity Index (GPI) sharply increased from less than 0.6 in 2004 to nearly 0.8 in 2009 (see Figure 5) but the net enrollment ratio was still as low as 55 percent for girls (Republic of Yemen 2012b: 55).¹⁴ The results indicate that higher enrollment and a better GPI are negatively associated with student achievements. This seems to imply that a high-achieving school in respects to educational access might be less able to ensure quality of learning resources per student, and learning achievements for either girls or boys.

Table 3: OLS Estimation of Mathematics Examination Scores, Grade 4, Yemen		
Specification	1)	2)
Student's Gender (1: Female, 0: Male)	16.556***	16.734***
Household Goods ^{a)}	5.642***	6.021***
High Building Shortage(1: Yes, 0: Otherwise)	-16.158***	-17.544***
Ask Parents to Raise Funds (1: Yes, 0: Otherwise)	10.487***	10.219***
Enrichment Math (1: Yes, 0: Otherwise)	29.618***	29.930***
Less Qualified Teacher ^{b)}	5.708	5.963
Class Size (Math)	-0.544***	-0.511***
Class Size X (Less Qualified Teacher)	-0.366***	-0.375***
Rural (1: Rural, 0: Urban)		4.713
<i>obs</i>	4601	4601
<i>adj Rq</i>	0.0777	0.0778

^{a)} $p < 0.10$, ^{*} $p < 0.05$, ^{**} $p < 0.01$, ^{***} $p < 0.001$

Note: a) Availabilities of 4 goods in student's home (presence of calculator, computer, study desk, dictionary). b) 1: equal or less than teacher institute's diploma, 0: equal or higher than university diploma.

Source: TIMSS, 2007 for Yemen.

A higher student-to-teacher ratio is also negatively associated with student achievements. Yet, some related measures mitigate these negative associations. For example, having supervisors visiting schools and holding workshops with communities on school improvement show positive association with student

learning. The enhancing roles of parents, communities and local administrations in school improvements are already important factors for improving gender parity in access (e.g., JICA 2010), and they could also be vital for improving student learning.

Table 4: OLS Estimation of Mathematics Examination Scores, Grades 5 and 6, Dhamar Governorate, Yemen

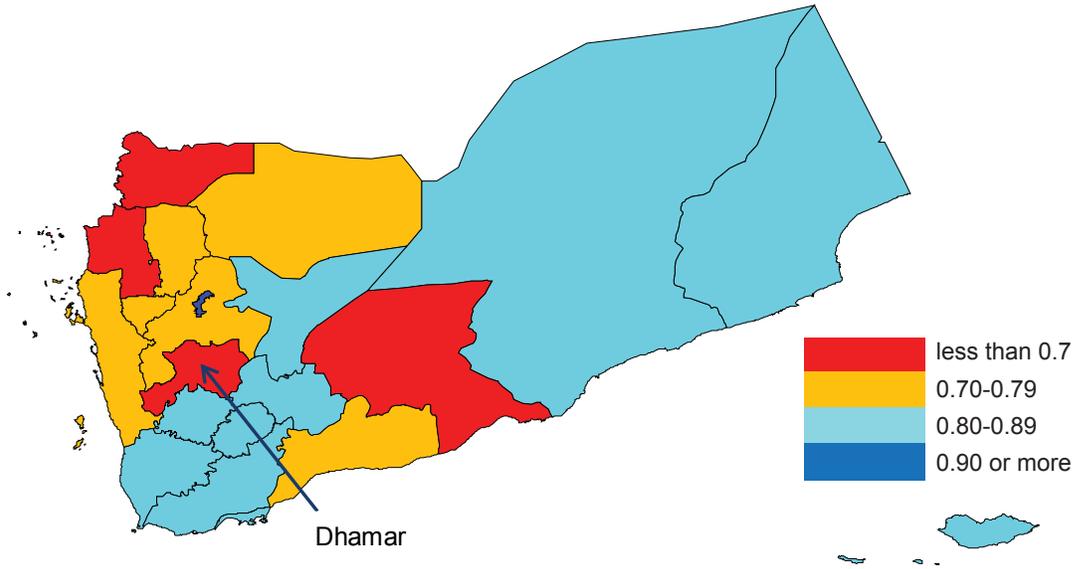
Specification	1)	2)	3)
GPI Change in Enrollment, 2004-2007, (1: High, 0: Other)	-4.030***	-4.030***	-3.762***
GPI Change in Enrollment, 2007-2010	-3.820*	-5.494**	
Enrollment Growth Rate from 2007-2010 (Grades 1-6)			-4.183**
Student's Gender Dummy (1: Female, 0: Male)	1.605**	1.183	1.680**
(Female)x(GPI Change)		3.807	
Student's Grade (1: Grade 6, 0: Grade 5)	1.529**	1.560**	1.545**
Variable Group Concerning the Student's Home Environment ^{a)}			
Student's Arithmetic Homework Dummy (1: every day, 0: other)	0.607	0.596	0.602
Frequency of Supervisor's Visit	2.124***	2.132***	2.070***
Other Characteristics of School:			
Presence/Absence of a Workshop on the Quality of Education Attended by Parents	2.590***	2.573***	2.385***
Time of Establishing Fathers' Council (1: 5 or More Years Ago, 0: Otherwise)	7.492***	7.510***	7.243***
Education Fees Paid by Parents (Grade 6 Students)	3.294***	3.294***	3.336***
Number of Students per Teacher	-0.119***	-0.120***	-0.093***
Characteristics of Arithmetic Teacher			
Number of Years in Teaching	0.459***	0.456***	0.478***
Training Experiencec(1: Yes, 0: No)	1.136	1.181	1.171
Teaching Method: Frequency of Teaching Equations for Word Problems	1.324***	1.314***	1.652***
<i>obs</i>	1159	1159	1159
<i>adj Rq</i>	0.2324	0.2325	0.233

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Note: a) It controls the variable group including the housing environment (e.g., presence/absence of electricity and desks, parent's education and vocation).

Source: 2011 JICA/ERDC survey in Yemen.

Figure 5: Female to Male Student Ratio, Grades 1-6, Yemen



Source: Prepared by author using Yemen Annual Education Survey 2009/2010.

QUALITY OF SYSTEMS AND POLICIES

To address the various issues for improving the quality of learning, what policy reforms need to be further considered? This section examines the quality of Yemeni policies in comparison to global empirical evidence and best practices, mainly using the conceptual framework, diagnostic tools and policy database developed by the World Bank and its partners under the program called the “System Approach for Better Education Results” (SABER).¹⁵

Assessment Systems to Know and Ensure Quality Standards

Many countries provide either an examination or a standardized assessment during the so-called primary cycle, but it is not the case for the current assessment system in Yemen (see Table 5).¹⁶ At the final year of basic education (Grade 9), Yemen has a regional examination for a graduation certificate.¹⁷ The graduates who passed the Grade 9 exams have a right to enroll in public secondary schools (from Grade 10 on), and they are to be accepted by public schools on a first-come-first-serve basis (in practice, better scoring students go to secondary education, while the others may go to vocational training, the labor market, etc.¹⁸). This system is quite different from some East Asian countries, such as Japan and Indonesia, which have competitive selection systems into public senior secondary education. At the end of (upper) secondary education, Yemeni students need to pass a national examination to receive a graduation certificate by choosing either the art or science field. The scores are used as selection criteria to enter public and private universities. New graduates need to wait for one year before being enrolled. Competitive departments, such as medicine and engineering, often request students to take additional entry examinations.

There are always possibilities to enter universities for students who passed their graduation examinations, provided that they do not mind the departments or paying additional fees for evening shifts at public or private universities.

To fill the information gap on the learning achievements at the primary cycle, the country is considering introducing a national assessment at lower grades of basic education in its Updated Sector Plan 2013-2015 (Republic of Yemen 2012a), although it is not yet sure where it is to be implemented. In terms of international large-scale assessments, the government participated in three rounds of TIMSS and plans to use TIMSS as a monitoring tool to raise students' learning achievement in light of international standards (Republic of Yemen 2012a). However, questions are raised by development partners on the necessity of Yemen joining the next round of TIMSS given its lack of relevance to the curriculum and its low performance (Al-Seyani 2012). While this may be a good opportunity to consider the relevance of TIMSS for Yemen, there is a risk of dropping it without having any alternative assessment opportunity.

Classroom assessments could provide swift feedback for improving teaching and learning activities (Clarke et al. 2012). In Yemen, at the basic education level, the results of two classroom examinations are used as a pass or fail test for promotion to the next grade (Al-Seyani 2012). The exceptions are for Grades 1 to 3 where students can progress to the next grade regardless of scores, but this policy is now being reconsidered for possible revision.

Teachers

The SABER program on teacher policies classifies and analyzes education systems around the world

Table 5: National Examination and Assessment System, Yemen and Selected Countries, 2010-2011

Education of	Arab				Asia	
	Yemen	Jordan	Tunisia	Egypt	Japan	Indonesia
Duration of Education (Years)						
Primary or Basic	9 ^{a)}	10 ^{a)}	6	6	6	6
(Lower and Upper) Secondary	3	2	3+ 4	3+ 3	3+ 3	3+ 3
Compulsory Education (Years)	9	10	11	9	9	9
Standardized Assessments of Student Learning						
Primary-Cycle or upto Grade 6	n.a	Assess (Grade 5)	Assess (Grade 4)	Assess (Grade 4) Exam (Grade 6)	Assess (Grade 6)	Exam (Grade 6)
Lower Secondary	Exam (Grade 9)	Assess (Grade 8) Exam (Grade 10)	Exam (Grade 9)	Assess (Grade 8) Exam (Grade 9)	Assess (Grade 9) Exam (Grade 9)	Exam (Grade 9)
Upper Secondary	Exam (Grade 12)	Exam (Grade 12)	Exam (after Grade 12)	Assess (Grade 10) Exam (Grade 11/12)	Exam (Grade 12)	Exam (Grade 12)

Notes: a) The duration of lower secondary is considered as grades 7-9 for Yemen, and grades 7 to 10 for Jordan in this table for comparison. Exam: Either national or regional examination which decides for completion or entry into the next level of the specific level of education. Assess: Nationwide all or representative sample learning assessment (which does not decide pass or fail at grade or specific level of education).

Sources: SABER- teacher online database, accessed June 2012; UNESCO, 2011; World bank, 1999; For Japan, <http://www.nier.go.jp>.

according to eight core teacher policy goals to which all education systems should aim. These goals were selected because (i) they are related to either student or teacher performance through theory or evidence; (ii) they are priorities for resource allocation; and (iii) they are actionable (i.e., governments can have a direct influence on them through policy reforms). Education systems are classified according to their level of development in each of these goals. The four levels of classification are “latent,” “emerging,” “established” or “advanced.”

According to the database of the SABER teachers,¹⁹ Yemeni teacher policies are assessed as “established” on the three policy goals, but “latent” on the others (Table 6). Benchmarking with global good practices suggests that it is important for Yemen to improve quality of teacher policies and implementation so that teachers are deployed to even hard-to-staff schools, motivated to attend and perform at school, and supported to improve instruction through better training.

For the goal of “matching teacher’s skills with students’ needs,” Yemeni policies are classified as “latent.” Yemen faces difficulties to recruit teachers with needed skills (World Bank 2011a). Teacher deployment to rural areas is hard to be achieved. No regulation mandates that public school teachers work in hard-to-staff schools at some point in their career, and incentives for teachers to work at these hard-to-staff schools are also assessed as latent. Only monetary bonus or allowances are to be provided according to

the 1999 law for teachers working in rural areas, depending on their remoteness. It is difficult to leave the teachers who reject rural assignments out of the payroll. As a short-term measure, the government or schools contract teachers who may not have the required qualification, especially if they are females and/or if they come from the same rural area as the schools needing teachers. However, this approach also makes equality as a quality issue to be tackled as soon as possible.

Policy goal	Yemen	Egypt	Jordan	Tunisia
1. Setting Clear Expectations for Teachers	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿
2. Attracting the Best into Teaching	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿
3. Preparing Teachers with Useful Training and Experience	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿
4. Matching Teachers' Skills with Students' Needs	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿
5. Leading Teachers with Strong Principals	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿
6. Monitoring Teaching and Learning	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿
7. Supporting Teachers to Improve Instruction	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿
8. Motivating Teachers to Perform	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿	⦿⦿⦿⦿

Note: ⦿Latent ⦿⦿Emerging ⦿⦿⦿Established ⦿⦿⦿⦿Advanced
Source: World Bank SABER online database, 2010-11, accessed August 2012.

Policies with the goal of “supporting teachers to improve instruction” are also “latent” for Yemen. Yemen does not require professional development training although the government has conducted series of refreshers or upgrading in-service training (e.g., World Bank 2007). Yemen is also “latent” for one sub-indicator regarding the extent to which new teachers are required to be familiar with classroom practices. There are also plans for the training of a certain number of teachers with an emphasis on classroom performance (Republic of Yemen 2012a). The Ministry of Education’s management information

system would be designed to include data on teacher training experiences so that it could be used for personnel management (Al-Seyani 2012). It is crucial to utilize such information for ensuring the quality standard of teachers among schools.

Among policies with the goal of “motivating teachers to perform,” a basic but important challenge is teacher absenteeism. Although Yemeni policies, as in the other Arab countries, mandate penalties for teacher absenteeism, there are many issues regarding the practical mechanisms for implementing these

policies (World Bank 2011a). A survey found that the absenteeism rate, defined as the percentage of teachers who are absent on the day of survey visit without prior approval of leave, was 14 percent on average among teachers in basic education schools (World Bank 2006). The absence rate defined as the percentage of teachers who are absent on the day of visit regardless of their official or unofficial excuses, was 19 percent on average. It was pointed out that this teacher absence rate is fairly significant compared to several other countries with similar social and economic indicators. Smaller schools tend to have greater teacher absenteeism than larger schools while a teacher in a small school teaches more subjects than larger schools on average: 4.2 and 1.7 subjects, respectively. Teacher absenteeism can also have a more severe effect on students in rural areas than urban areas because rural schools have less registered teachers, and it is difficult to find substitute teachers for the absent ones. Above all, the number of teachers on a payroll was much larger than the number of teachers in the annual education survey (198,671 versus 171,101), implying a serious issue of ghost teachers (nearly 30,000 salaried persons who are not recognized by any school director at all) (World Bank 2006). Recently governorates started salary reductions from punished teachers due to absenteeism and reallocation of the budget to school operations (Al-Seyani 2012). To our knowledge, no information, however, is yet available on whether this measure has made teachers more present at schools and removed ghost teachers from the payroll system.

Policies with the goal of “monitoring teaching and learning” are relatively well assessed as Arab countries, including Yemen, have some students’ assessments, although a lack of linkage with policies on reviewing teachers’ performance makes feedback of their performance insufficient (World Bank 2011a).

Teacher evaluations are to be conducted by sub-national and local authorities every year but these evaluations are not required for all teachers nor do they take into account progress in student learning (World Bank 2011b). As in the other Arab countries, Yemen does not have a policy for feedback from parents (World Bank 2011a). The mechanism of parental feedback to teacher performance is not clearly defined in the Updated Sector Plan 2013-2015 (Republic of Yemen 2012a), although the involvement of parents and communities in school is emphasized. The role of school committees, including fathers’ and mothers’ councils, is to include monitoring teachers’ absences but not their teaching performance (Al-Seyani 2012). In fact, one survey notes that schools with fathers’ and mothers’ councils suffer 5 percent less teacher absenteeism rates on average than the other schools without them (World Bank 2006: 34), underscoring the importance of parental and community roles.

Curriculum and Textbooks

The official total of instruction hours per academic year is short in Yemen, as in some other Arab countries (World Bank 2011a; World Bank 2011b), but actual teaching time is known to be even shorter. Yemen has 729.6 hours of teaching per year in primary and 864 hours in secondary education, which is only 70 percent of the time of “high performing systems” at the secondary education level. Moreover, the time to deliver the curriculum is often constrained due to high levels of teacher absenteeism and limited hours of operations of schools, particularly in rural areas (World Bank and the Republic of Yemen 2010).²⁰ Although short instructional time has an effect on students’ learning skills and knowledge, instructional time itself does not seem to be a topic of reform in the Updated Sector Plan 2013-2015 (Republic of Yemen 2012a), built on the Basic Education Development Strategy

(BEDS 2003 -2015). Instead, the policy focus is placed on policy measures to increase the actual instructional time to meet the official requirement of good quality (180 to 190 days), for example, by training and supervising teachers (Al-Seyani 2012).

For curriculum content, the difference between policy intents and implementation also appears to be a matter of concern. For example, the TIMSS 2007 shows that the “intended curriculum” of Yemen covers the TIMSS mathematics items at more or less the same level as the international average, the same as Japan (Mullis et al. 2008). However, “taught” mathematics topics cover only 46 percent of all items, the smallest percentage among the participant countries. It generally seems that high-scoring countries such as Singapore have a high percentage of “taught” items in the topics (Mullis et al. 2008). The contents of classroom activities are an issue if the country wants to make the education system perform in line with an “international standard.”²¹

Actual teaching practice may not catch up with a reformed curriculum in Yemen. Although the policy intends to provide one set of textbooks per student in basic education, the 2011 JICA-ERDC survey shows that only 67 percent of Grades 5 and 6 students or 71 percent of Grades 8 and 9 have all textbooks in the surveyed rural schools. Similar to the delivery of textbooks, despite the existence of a teacher’s guide with instructions for a competence-based curriculum, the guidebooks are delivered at the end of the academic year. Furthermore, the guidebooks are difficult to comprehend due to a number of errors and mistakes in their content. Materials for teaching and learning, references, and books in the libraries are not aligned (quoted in World Bank and Republic of Yemen 2010).

School Autonomy, Community Participation and Accountability

The SABER program on school autonomy and the accountability scale classifies and benchmarks school-based management policies with the goal to promote better conditions for the improvement of learning. As pointed out by Bruns, Filmer and Patrinos (2011), by deepening school autonomy and accountability, schools can redefine their incentive structure to create better conditions for learning and teaching. In the process parents become clients of the education system and partners in the management of education at the school level. There are five main indicators and each of them has a set of sub-indicators, all of which are assessed and scored (see Table 7).

According to SABER’s school autonomy and accountability scale, Yemeni policies are overall assessed low on school autonomy or accountability as Table 7 indicates. The Yemeni government has a policy of decentralizing public primary education expenditure management to the governorate level (headed by governors), but not to the school level. In practice, the key responsibilities of either personal or operational budgets remain at the central level as discussed below. Still, local authorities, schools and communities share responsibilities, and they play the important roles of helping children learn.

In terms of personnel matters, public schools’ regular teachers are hired by regional governments (governorates) according to the number of new hiring needs approved by the central government in Yemen. As discussed earlier regarding teacher policies, teacher evaluations are also conducted by subnational and local authorities although communities and parents contribute to monitoring teachers’ presence.

While contract teachers normally follow the same rules as regular teachers, there are some exceptions that schools or school management councils contract with teachers using funds provided by communities or external donors. This method of contracting teachers has been especially used in remote areas where regular teachers are reluctant to go and where schools prefer to have local teachers. One of the typical is-

issues is the difficulty of changing the status of contract teachers to regular teachers due to the presence of many decision-makers, fiscal constraints and low qualification of school or community-contracted teachers. Unlike some other countries (e.g., Kenya, see Duflo et al. 2011), no evidence is available whether contract teachers perform better or not compared with regular teachers in Yemen.

Table 7: School Autonomy and Accountability, Yemen and Selected Countries

	1. Autonomy in Budget	2. Autonomy in Personnel Management	3. Role of School Council on School Governance	4. School and Student Assessment	5. Accountability
Yemen ^{a)}	⦿○○○	⦿⦿○○	⦿○○○	⦿○○○	⦿○○○
Senegal	⦿○○○	⦿○○○	⦿○○○	⦿⦿⦿○	⦿○○○
Lao PDR	⦿⦿○○	⦿○○○	⦿⦿○○	⦿⦿○○	⦿○○○
Vietnam	⦿⦿○○	⦿○○○	⦿○○○	⦿⦿○○	⦿⦿○○
Mexico	⦿⦿○○	⦿○○○	⦿○○○	⦿⦿○○	⦿⦿○○
Indonesia	⦿⦿○○	⦿○○○	⦿⦿⦿○	⦿⦿⦿○	⦿⦿⦿○
Malaysia	⦿⦿○○	⦿○○○	⦿⦿⦿○	⦿⦿⦿○	⦿⦿⦿○
Thailand	⦿⦿○○	⦿○○○	⦿⦿⦿○	⦿⦿⦿○	⦿⦿⦿○

Note: ⦿Latent ⦿⦿Emerging ⦿⦿⦿Established ⦿⦿⦿⦿Advanced

a) Yemen data were collected only for this paper, not validated by the World Bank SABER team.

Source: Prepared by author, using data from the World Bank SABER website, Patrinos, et. al, 2012 for Senegal, and Al-Seyani, 2012 for Yemen.

The non-salary operational budget is also mostly managed by central or regional governments in Yemen. For textbooks, the central Ministry of Education prints new textbooks and distributes them to district education offices so that each student should receive a set of textbooks each semester. School directors are supposed to pick them up and distribute them to each student. Some school managers rent trucks to deliver textbooks by using school fees (World Bank 2006; World Bank and Republic of Yemen 2010, cited in Al

Mansoob 2007). However, due to delays in printing and lack of a distribution budget, the full packages of textbooks do not often reach the students on time. Other teaching materials, such as chalk and flipcharts, hardly reach basic schools either. Budget allocations for utilities like water tanks are not available.

Shortages of operational costs are often filled by so-called community participation fees, which are collected by schools and remain there to some pro-

portion. However, these fees have been eliminated for all students in Grades 1 to 3 as well as for girls in Grades 4 to 6 (Republic of Yemen 2012a). The fee abolition has been often associated with school grants schemes in African countries, such as Kenya and Uganda (Fredriksen 2007).²² Yemen also approved a cabinet decree on school operation budgets (school grants) in 2008, although it has not yet been enacted or actually budgeted by the Ministry of Finance.

For school grants, the Ministry of Education has experimented as participatory school-based management programs with development partners, namely UNICEF for Child Friendly Schools (2008-), World Bank and its co-financers for a whole school development program (2009-), and JICA for a project, Broadening Regional Initiative for Developing Girls' Education or BRIDGE (2005-).²³ The three programs have been piloted in different areas with different guidelines. Yet all share similar features that facilitate school councils, including having representatives of fathers, mothers and communities prepare and implement school improvement plans with grants and voluntary contributions as summarized in Table 8. Fathers' and mothers' councils are parts of the school committees that manage the school grants, and thus parents have the right to review the financial report. The results are promising, although challenges remain. For example, BRIDGE worked to improve the gender parity rapidly, but a challenge is to maintain the progress, calling for continuous facilitation from administrations to schools and communities (Yuki et al. 2012). The government of Yemen now has plans for various measures to scale up these experiments, for example, by unifying the manuals of similar projects, enacting a decree to provide operational budgets to schools (as school grants), facilitating the establishment of fathers' and mothers' councils, and implementing awareness activities (Republic of Yemen 2012a).

Table 7 also indicates that school accountability (measured in terms of availability and use of education and finance information) is also low in Yemen. It is important to help schools be accountable for results so as to ensure continuous community involvement in school management and provide them with more resources and responsibilities. Information is available at the central level in terms of basic data, such as the number of students by gender and facility,²⁴ however, there appears to be no standardized system to report such information, originally collected at school levels, back to the communities and parents. Tests scores are currently communicated at the student level, and there are no comparisons between schools, and thus no basis available to judge if schools are doing well or if they can/should do better with the communities involved. There are no criteria within the Ministry of Education to assess schools. Schools do not use student assessments to make pedagogical adjustments or to change school materials. The results of national exams at Grades 9 and 12 are made available to students who take the exams, but comparisons are not made among schools or over time.²⁵

Comparisons among governorates, which have a certain decentralized budget authority, are often made, but the analyses rarely inform about the changes over the years or are used for improving budget allocations and implementation. For the BEDS (2003-2015) and the Updated Sector Plan 2013-2015, the Ministry of Education has prepared a projection model of basic inputs for target enrollments at the national level but not for each governorate. Although there was a plan to prepare an action plan by governorate, only few governorates (who benefitted from external technical assistance) prepared action plans.²⁶

Table 8: Participatory School-Based Management Programs with School Grants, Yemen

Project or Program Name	BRIDGE 1 ^{a)}	Basic Education Development Project (BEDP) 1 component 3.2 "Community Participation and Literacy"	Child Friendly School (CFS)	Updated Sector Plan 2013-2015 School-Based Development
Partner	JICA	IDA, DFID, Netherlands	UNICEF	MOE with all partners
Years and Targets	<ol style="list-style-type: none"> 1. 2005-2006 to 2008-2011. 2. 59 schools in Taiz governorate. 	<ol style="list-style-type: none"> 1. 2008-present (from 2009 implementation started). 2. 60 schools: 30 schools each in Hadramawt and Al Mahrah governorates. 3. Plan to expand to 120-150 schools. 	<ol style="list-style-type: none"> 1. 2008-present. 2. 110 schools in 11 districts in 5 governorates (Hodeidah, Taiz, Ibb, AlDhale and Lahej). 	<ol style="list-style-type: none"> 1. 2013-2015. 2. 700 schools in 2012 and 2013 to cover all basic and secondary schools.
Tools to Directly Support Schools	Grant \$3,000 based on school plan prepared by school committee.	School grant U.S.\$1500.	U.S.\$1,000 grant per year (the year 2007).	300,000 YER (about U.S.\$1500) per school.

Note: a) BRIDGE 2 (2009-) is currently suspended due to security reason. It is for Dhamar and Taiz governorates.
Source: JICA, 2008; JICA, 2009; World Bank, 2004; Republic of Yemen, 2012a: 54; Republic of Yemen, 2012b.

POLICY IMPLICATIONS FOR A NEW EDUCATION PLAN

The Arab spring brought great attention from the international community to the needs of Arab youth and thus the need to increase the relevance of higher education and vocational training so they can find good jobs or create their own businesses. The youth's trainability and employability can and should be ensured by a good quality education in earlier grades. Making efforts to improve the quality of education for all girls and boys is imperative for inclusive development. Great and more urgent efforts are especially needed in Yemen because it is the poorest country in the Arab region and is affected by political conflicts. The country's recent conflicts are reported to have negative effects on learning, for example, by displacing 64,000 6 to 14 year olds or by apprehending 13,000 school teachers and managers (Office for the Coordination of Humanitarian Affairs 2011: 57). School spaces are used by the displaced people or taken as bases by armed groups (UNICEF, May 2012).

How is the new government going to address these enormous challenges in education? The government has committed itself to developing a National Education Vision for Yemen (NEVY), expected to be finalized by mid-2015, which would implement one overall education strategy that would guide the plans of the different subsectors (including basic, secondary and higher education, and vocational training). This gives the government and its development partners time to formulate better policies and to ensure their implementation along with the citizens who can now be involved more actively than before. To capture this important moment before 2015, the Updated Sector Plan 2013-2015 was recently updated and discussed with the development partners.

The Sector Plan proposes various reforms for better basic education quality and calls for partners' supports to fill the financing gaps. The implementation should be strongly committed by the government as a whole and supported by the development partners both financially and technically so that the country can avoid any trade-off between access expansion and quality improvement towards better learning for all. Among many policy areas, based on our analyses of learning achievements and quality of policies, we want to underscore the three types of actions that should be enhanced in the short run and carried out continuously to improve the quality of learning for all.

First, teacher management policies need to be strengthened and implemented by all the stakeholders, including administrations, schools and communities to ensure that students, even in disadvantaged areas, learn from motivated teachers, who fully teach the intended curriculum in a reasonable class size. Specific policy measures can include: (i) microplanning and implementation of teacher deployment to rural schools, with a greater attention paid to the current and potential variations of class sizes to further reach out-of-school children; (ii) monitoring teachers' actual placements and daily attendance to reduce the number of ghost teachers and absenteeism; (iii) linking the records of teacher placements and attendances to the actual salary payments and providing the needed rewards for difficult areas in a transparent way; (iv) improving supervision to assess and guide schools; (v) improving records and information on teachers who could receive professional development and in-service training in order to give priority to teachers who need it the most; and (vi) facilitating the roles of parents and communities in monitoring the attendance of school directors and teachers.

Second, nonpersonnel school resources need to be especially improved in relatively disadvantaged areas where schools may have difficulty in requesting parental or community funding and voluntary contributions. With donors' support, Yemen could scale up the existing mechanisms for school grants to reward communities and schools that aim to improve access for girls and disadvantaged students and enhance the quality of learning. As of now, only a limited proportion of basic schools are to receive such school grants, though according to a cabinet decree the Sector Plan aims to cover all schools by 2015. Such resources should ideally be provided by domestic funds. However the use of external funds can be justified to cope with the recent crisis and to better achieve the international goal of universal primary education without sacrificing the quality of learning. Providing sufficient grants for schools is key for inclusive development and economic growth. In fragile countries, school grants can be used not only as operational or recurrent budgets, but also as investment budgets. Meanwhile, it is important, by comparing experiences between governorates, to refine the mechanisms that would improve the administrative efficiency in fund transaction and targeting (e.g., differentiating the grant amount by school size and community poverty level), and the monitoring and advising to schools and communities on school improvement plans. Such mechanisms should also develop the institutional capacity of communities to participate in school governance and increase their access to school information, roles and voices for improving student's learning opportunities and outcomes.

Third, there is also a need to improve transparency and accountability of school resources and results. In the short term, the Ministry of Education can and should promote the utilization of available data by schools and local administrations to assess their own

current status and over-year change in key educational resources and outcomes and compare them with other schools and localities. As a feasible starting point, the Ministry of Education can post, on its Web site, the list of all schools with basic indicators such as the number of students by gender and per teacher by using the annual education surveys (AES) conducted since 1999.²⁷ The Ministry of Education should also promote and distribute the school list to local administrations that do not yet have online access and encourage them to discuss the information with schools. Although schools must know what the issues are by themselves, less systematic information is available to know how each school or/and its locality (e.g., district) is doing over time and as compared with others, and how to improve. Such information should be also made available to community-level stakeholders, such as fathers' and mothers' councils and school management committees, where such institutionalized bodies are functioning. It will also be important for the central government and the development partners to efficiently allocate and possibly increase resources based on the needs and progresses. All stakeholders should be able to know the progress on the implementation of the teacher management policies discussed above, as well as the school-level management reforms, and the transparent and utilized information would greatly help the linkages between schools, communities, all levels of administration and development partners.

While the quality and timely availability of AES data is expected to be improved, increasing access and utilization of the available data can motivate stakeholders in the yearly data collection. The Ministry of Education and other related agencies could also advance data comparability between the AES and other databases, such as examination, personnel management, finance, child population, etc, by unifying soft-

ware as well as the identification numbers of schools and localities. This move would allow the Ministry of Education to add more key indicators to its school and local-level database for wider use and to increase transparency and accountability at all levels, which is a basis for inclusive development.

Development partners often support the development of project-specific monitoring databases and/or base/end line survey data, focusing on their pilot schools and control schools. If such databases were designed in advance to make the data comparable and merged into the Ministry of Education's education management information system (EMIS) (e.g., using the same school and district IDs), it would help long-term and comprehensive monitoring, while facilitating short-term utilization of Ministry of Education data and improve the data quality. This move could also help reduce the cost of monitoring for development partners because an improved EMIS could be used for project-specific performance comparison with a non-treatment group. Other than specific projects, donors also support theme-specific surveys, such as TIMSS, which could help the capacity of not only education researchers but also administrators in their moni-

toring and guidance to schools and teachers if the results and instruments (e.g., released TIMSS math test items in Arabic) are disseminated widely. While the government is planning to introduce new national assessment surveys in basic education, it would be important to develop such an assessment, learning from experiences with TIMSS and other relevant surveys in terms of not only survey contents but also utilization.

The Yemeni government needs to utilize various types of information to regularly monitor the implementation of the strategy's key outcomes and input indicators, such as student-to-teacher ratio and coverage of textbooks, in order to ensure that the national average targets are being translated into practice and help them figure how action plans and budgets need to be revised towards inclusive development, paying attention to the areas in greater needs. Articulating the strategy's targets, financial commitments and progress would show the strong commitment of central leadership to all stakeholders, including the local communities, schools and local administrations, who all share important roles in the strategy to improve quality and equity of basic education, and thus improve its implementation.

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2. World Bank online data (accessed December, 2012).
3. Enterprise surveys online data. <http://www.enterprisesurveys.org/> (accessed July 10, 2012).
4. The Center for Universal Education (2012) suggests that the learning outcomes of post-primary education in most developing countries need to be reviewed to see whether it helps adolescents develop such 21st century skills. For Yemen, a case study of secondary education's third grade indicates that the majority of those who attended the knowledge skills measurement examination did not get the required skills needed for the 21st century, including problems-solving skills, written communication, technology use and searching for information (Republic of Yemen, 2012a; Mohammed bin Rashid Al Maktoum Foundation and UNDP, 2012).
5. Some countries participated only in grade eight, some only grade four, the rest both grades.
6. The declaration emphasizes different issues: actual teaching and learning factors, students' learning assessments, reliable monitoring and evaluation methods, accountability in the sector and collaboration with stakeholders (<http://go.worldbank.org/G17C2VQXYO> accessed in July 2012).
7. UNDP MDGs online data (accessed in August, 2012).
8. Compulsory education is defined as eight to nine years of education in most Arab countries, including Yemen. For Yemen, after basic schools, the system separates students into secondary schools and post-basic vocational training centers. Then the system tracks students into universities (degree or diploma courses), community colleges (two years), or post-secondary vocational training centers.
9. World Bank online data, accessed in December, 2012.
10. The private share is a little high at the tertiary level (20.1 %), while it was only 4% at the primary level in 2010 (World Bank online data, accessed in December, 2012).
11. This is a multi-donor initiative, to which the Government of Japan also contributes. It is now named the Global Partnership for Education (GPE).
12. The TIMSS sample schools are randomly selected according to an international sampling guideline, which sets a minimum class size in order to be selected and thus excluding many of the small rural schools in Yemen. For this research, the MOE provided the information of TIMSS sample schools and the research team merged them with the AES data of 2004/05, 2007/08 and 2009/10 for basic indicators (e.g., number of students and teachers). The merged total number of schools is 141.
13. To directly tackle poor results, a pilot program named the General Education Improvement Program Yemen (GEIP) assisted by the GTZ, supports training for teachers in pilot schools in order to improve students' learning achievements. Their students appear to have performed better in the TIMSS 2011 grade four mathematic test (General Education Improvement Program, July 2012).
14. The 2011 survey was conducted by JICA and the Education Research and Development Center (ERDC) under the MOE and merged with the annual education survey (AES) data. All sampled rural schools were randomly selected to represent schools in underserved districts with a low base in terms of GPI in 2004/05. They were then split into two groups according to their medium-term improvement of GPI between 2004/05 and 2007/08. Group 1 represents the high-achieving

- group and Group 2 the low-achieving group. Students (grades five and six) were tested on mathematics using the released 2007 TIMSS's question items.
15. The SABER is an initiative that helps countries systematically examine and strengthen the performance of their education systems to achieve learning for all. The SABER work on about 15 policy domains (education issues or subsectors) to design key policy indicators based on existing empirical evidence of good practices and diagnosis tools that enable data collection, scoring and assessment. The results are often summarized as a country or regional report. For details, please see <http://go.worldbank.org/NK2EK7MKVO>.
 16. The categories of assessment are according to the SABER framework (Clarke et al. 2012). However, as the World Bank does not yet conduct the data collection on Yemen using the questionnaire of the SABER assessment domain, this section uses the other comparable sources, such as SABER teachers and UNESCO, in addition to other country information.
 17. The certificates for grade one to eight of basic education and 10-11 of secondary education are issued by the schools, and only certificates for grades nine and 12 are issued by the MOE at the central level. If the students want to move from one school to another within the same district, they need to get the approval of the District Education Office; if the students want to move to another school in another district but in the same governorate they need to get the approval of the Governorate Education Office.
 18. Although, in practice, lower scoring students go to vocational training, they have to go through a selection process. This selection process is not due to vocational education being selective but due to the limited number of vocational institutes, which are concentrated in urban areas. (Al-Seyani 2012).
 19. As of August 2012, the data are available for 50 countries on the Web site.
 20. The research on actual students' learning days vis-a vis official instructional days indicate 77.9 percent in Tunisia and 71.1 percent in Morocco due to school closures, teachers' absence, teachers' available days, classroom task days and students' absence days (Abadzi 2007: 22). In the case of Morocco, there are positive correlations between rural schools and school closures, classroom task days and tasks in management. The results suggest that schools in rural and poor environments have fewer learning days than schools in urban and more advantaged communities (Abadzi 2007).
 21. The issue is not only about subject coverage but also the test method. Most of Yemeni grade four students are not familiar with the type of TIMSS questions and implementation method (i.e., students receive any test prepared by external agency other than their own teachers, and take the test including items that are not taught in class in a given time of about 30 minutes) (Al-Seyani 2012).
 22. The majority of public education budgets accounts for teachers' salaries while communities contribute to non-tuition costs such as examination and certification fees. The amount is not large but it is known to be a burden, especially for poor families who have many school-aged children, and consequently the government has started exemption of community contribution fees.
 23. The three programs have been built on earlier efforts of capacity building by the MOE for institutionalizing community and parental participation. The government started institutionalizing and developing its community participation capacity in the late 1990s. For example, with the assistance from donors such as the GTZ and the World Bank, the government established a community participation unit in the Ministry of Education and

promoted mothers' and fathers' councils whose responsibilities are to care for school facilities, monitor teachers' attendance and assist needy children at their schools (e.g., World Bank 2004; Adele 2005).

24. On education-related Millenium Development Goals, four out of the six target indicators have data for year 2010 according the UNDP database. According to UNESCO statistical database (UIS), 40 percent of the 346 indicators have data for 2010, and the proportion is not low if compared with other several countries of the Arab region (see Statistical Annexes for details).
25. Students can also access the results through the internet. The data is based on individual students. The data by school are not available online (Al-Seyani 2012).
26. Hajah and Mareb governorates prepared their plans based on the MTRF with support from the GTZ. Hadramout governorate also has such as annual plan (Al-Seyani 2012).
27. The school list could and should include at least each school's name, ID number, location, the names of the directors who responded or were supposed to respond to the survey, and the figures of enrollments by gender and for teachers. (An example is available on the homepage of the Ministry of Education for Uganda). Then, the MOE can gradually add lists of schools with the same ID numbers for previous years which would enable various users to know trends over years for specific schools or regions in their interests.

STATISTICAL ANNEXES

Table A.1: OLS Estimation of GPI changes, BRIDGE and non-BRIDGE schools		
	Coef.	Std.Err.
Female to Male Student Ratio (Grades 1-6), 2004	-0.455	0.051***
Female Share in Teachers, 2004	0.498	0.241**
BRIDGE 1 Pilot (1=Yes, 0=No)	0.097	0.059*
_cons	0.130	
R-squared	0.376	
Number of obs (schools)	174	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Note: The dependent variable is point change in the school's female-to-male student ratio (grades 1-6) from 2004 to 2007 in Maqbanah and Mahwiya districts . This estimation controls for district effects.

Source: AES 2004, 2007.

Table A.2: MDG Education and Gender Equality, Yemen and Selected Countries						
	2.1. Net Enrollment Ratio in Primary Education		2.2. Proportion of Pupils Starting Grade 1 who Reach Last Grade of Primary		2.3. Literacy Rate of 15 to 24-year-olds, Women and Men	
	2000	2010	2000	2010	2000	2010
Egypt	91.8	96.3	n/a	n/a	n/a	87.5
Jordan	92.2	90.7	96.5 ^{a)}	n/a	n/a	98.8
Morocco	71.0	94.1	73.3	90.5	n/a	79.5
Saudi Arabia	n/a	89.9 ^{a)}	n/a	n/a	95.9	97.8
Tunisia	94.9	99.4 ^{a)}	88.3	n/a	n/a	n/a
Yemen	56.7 ^{a)}	78.2	68.8 ^{a)}	n/a	n/a	85.2
3.1. Gender Parity Index in						
	Primary Level Enrollment		Secondary Level Enrollment		Tertiary Level Enrollment	
	2000	2010	2000	2010	2000	2010
Egypt	0.92	0.96	0.92	0.96	n/a	0.91
Jordan	1.01	1.00	1.04	1.06	1.15	1.16
Morocco	0.84	0.94	0.79	n/a	0.72	0.87 ^{a)}
Saudi Arabia	n/a	0.99	n/a	0.95	1.27	1.12
Tunisia	0.93	0.96 ^{a)}	1.03	1.06 ^{a)}	0.96 ^{a)}	1.51 ^{a)}
Yemen	0.63	0.82	0.41	0.62	0.27	n/a

Note: a) 1999 or 2001 (not 2000), 2009 or 2011 (not 2010).

Source: UNDP MDGs on-line data, accessed August 2012.

Table A.3: Number of Education Indicators Available in UNESCO Database, Yemen and Selected Countries

	All Levels				"Primary" Education			
	2000		2010		2000		2010	
Egypt ^{a)}	214	20%	199	19%	129	37%	67	19% ^{a)}
Jordan	395	37%	307	29%	147	42%	138	40%
Morocco	471	44%	473	44%	193	56%	168	49%
Saudi Arabia	132	12%	409	38%	10	3%	85	25%
Tunisia ^{b)}	369	34%	36	3% ^{b)}	172	50%	10	3% ^{b)}
Yemen	283	26%	308	29%	125	36%	138	40%
(Total indicators)	1071		1071		346		346	

Note: a) 144 indicators for primary education were available in 2009. b) For Tunisia, 383 indicators for all levels were available in 2008, 318 in 2009. 162 indicators for primary education were available in 2008, 132 in 2009.

Source: UNESCO Institute for Statistics on-line data, accessed August 2012.



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