

Report No: ACS18935

# Hashemite Kingdom of Jordan

## Education Sector Public Expenditure Review

June 17, 2016

GED05

MIDDLE EAST AND NORTH AFRICA



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## Acronyms

EMIS	Education Management Information System
ERFKE II	Education Reform for the Knowledge Economy II
GDP	Gross Domestic Product
GER	Gross enrolment ratio
JD	Jordanian Dinars
MENA	Middle East and North Africa
MOE	Ministry of Education
MOF	Ministry of Finance
MOPIC	Ministry of Planning and International Cooperation
OECD	Organisation for Economic Co-operation and Development
PER	Public expenditure review
PISA	Program for International Student Assessment
SCD	Systematic Country Diagnostic
STR	Student-teacher ratio
TALIS	Teaching and Learning International Survey
TIMSS	Trends in International Mathematics and Science Study
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
USAID	United States Agency for International Development
VTC	Vocational Training Corporation

## Executive Summary

Jordan invests substantial public resources in providing education services (3.5 percent of GDP for pre-tertiary education) – comparable to international averages and above what might be expected given its per capita GDP. It has made impressive strides in terms of schooling access and attainment – enrolment rates are on par with comparator countries, with the exception of pre-primary education enrolment rates, which remain low at 34 percent. Enrolment rates also show relatively large variation across governorates, as well as gender inequity in favor of females.

Yet desired student learning outcomes have not been achieved, remaining below international averages – and here again there is marked variation across governorates. The low education quality has likely contributed to the increasing share of enrolment in private instead of public education, so that today the majority of schools in Amman are private schools, for example.

Education policy makers have zeroed in on several structural dimensions of education services in order to address the issue of education quality. Policy makers have sought to address issues such as small schools and rented schools, on the one hand, and overcrowded classrooms and high student-teacher ratios, on the other. The latter concerns have become particularly pressing in recent years with the influx of Syrian refugee students into Jordan's public education system.

Yet the Jordanian system's basic attributes are sound: on average, schools are smaller than the recommended size but not dramatically so; and class size (27) and student-teacher ratio (16) are comparable to OECD averages. The problems of very small schools, overcrowded classrooms, and overburdened teachers are quite localized and must be addressed as such. This in turn requires detailed planning and careful implementation of capital investments – something that is thwarted by the fact that oversight over capital resources for the education sector is spread across ministries.

Another recent focus area for education policy makers has been teacher pay, where a doubling of the base salary was put in place recently. Compensation accounts for a high share of recurrent public education spending (92 percent), which already captures a large proportion of total education expenditure. Using all standard measures, teachers in Jordan today are relatively well-paid: by comparison with other tertiary-educated workers in the economy, relative to per capita, and even taking their teaching and work hours into account.

Despite the relatively good pay, there is some evidence that teachers in Jordan do not exert the requisite effort in order to achieve desired learning outcomes. The teacher pay scale and allowances in Jordan reward initial qualifications, seniority, and personal teacher attributes, as opposed to being an instrument for policy makers to incentivize better teaching performance or other desired education sector outcomes – such as teaching of math and science, or deployment in certain geographic regions. Yet, without teachers putting forth appropriate levels of effort in their classrooms, investments in other schooling inputs are unlikely to yield significant improvements in education service delivery and student learning outcomes.

As a result of the above summarized findings, this report makes recommendations related to three sets of issues: motivating teachers to perform; realigning capital investments; and addressing regional variation in outcomes.

Motivating teachers to perform in Jordan will require a shift towards performance-based education, whereby teacher accountability is at the heart of the sector reform agenda. Mechanisms will need to be put in place to determine actual teacher effort, and this teacher accountability will need to be rewarded through financial incentives, perhaps in the form of bonus pay. Existing allowances that do not incentivize performance will need to be phased out to allow for the introduction of other types of payments that can act as policy levers without further increasing the share of compensation in the budget.

In terms of capital investments, the Ministry of Education must have oversight of all capital spending in the education sector even if it does not manage all its implementation. And in order to address infrastructural constraints in the most efficient manner, the Ministry must have access to and make use of detailed geographic data. In addition, it may very well be the case that some areas in the country cannot escape having very small or rented schools – whether for reasons of sparse population, gender segregation, or simply lack of land for construction of large schools. School clustering may therefore be an approach worth consideration for Jordan, whereby individual schools are able to maintain their identity and institution, while at the same time sharing resources (including teachers), experience, and good practices.

Finally, the variation across governorates in terms of education access and quality outcomes requires further study and focused policy attention. Yet the Ministry is not structured in a manner to tackle the issue of varying education service needs by socio-economic level, for example, or for lagging regions. Nor does the budget preparation and execution process lend itself to specific focus on certain programs, being instead very much based on historical budgeting with adjustments according to enrolment trends simply. Yet the Jordanian government recently completed an exercise to assess the financial requirements of responding to the influx of Syrian refugees into the country, including for the education sector. This exercise adopted a “projectized” approach that arguably lends itself well to addressing the education service needs of lagging regions in Jordan.

In summary, Jordan’s commitment to educating its youth is clear – both in terms of financial resources as well as in terms of the recent education sector reforms put in place. This report puts forth that policy makers have achieved what can be achieved by focusing on the quantity and quality of structural determinants of education services, such as infrastructure and even teachers. It is now time to focus more on the next generation of reforms related to accountability and incentives, on the one hand, and zeroing in on specific segments of the population and country to address their specific needs, on the other.

## I. Introduction

1. This education sector public expenditure review (PER) aims to respond to policy questions on the mind of the Jordanian Ministry of Education (MOE) using data readily available to the Ministry as well as common analytical techniques. Despite impressive achievements in terms of access to education, policymakers in Jordan are keenly aware of the relatively low student learning outcomes in the country. In their efforts to improve the quality of education in the Jordanian education system, policymakers are quite focused on basic attributes of the system, such as school size, class size, and student-teacher ratios. On the one hand, policymakers are concerned with the number of small schools, and on the other, with the issue of overcrowded classrooms – given the potential negative impact of these on student learning outcomes. In addition, policymakers are intent on the quality of teaching and incentivizing teachers through better pay. The Syrian crisis with the associated influx of Syrian refugee children into Jordanian schools has made these issues all the more pressing for Jordanian policymakers.
2. This PER uses available MOE Education Management Information System (EMIS) and Ministry of Finance (MOF) budget data, in addition to other readily available sources of data, to shed light on the performance of the Jordanian education system and address policymakers' concerns. The reliance on the MOE EMIS in particular is driven by the desire to demonstrate the value of the data it contains, on the one hand, but also point to additional data needs if MOE is to strengthen its evidence-based decision making. Thus, the EMIS currently includes data by school on numbers of teachers and students; physical attributes such as land area, buildings, and classrooms; in addition to the school's geographic location, type, and supervising authority. The present EMIS therefore allows for relatively detailed analysis of the Jordanian schooling system, as will be shown in this report. However, the EMIS also entails shortcomings, as it does not allow for calculation of repetition and drop-out rates, for example, nor does it include any school financial data.
3. The present report begins by describing the achievements as well as shortcomings of Jordan's education system (Section II); Section III describes the current education learning environment, including some detail on the basic system attributes of school size, class size, and student-teacher ratio; Section IV then turns to public education spending and its allocation across capital and recurrent spending, as well as the costs associated with the Syrian crisis; Section V hones in on teacher compensation in particular, given its large share in spending; and Section VI provides resulting recommendations and international good practice for policymakers' consideration.

## II. Overview of Education Outcomes

*Jordan has made impressive gains over the past decades in education enrolment and attainment. Today's enrolment rates are on par with comparator countries (with the exception of enrolment rates in pre-primary education). Enrolment rates do show relatively large variation across governorates, however, as well as gender inequity in favor of females. Enrolments are increasing and will continue to do so for the foreseeable future based on population projections, but enrolments in the private sector are increasing at a much faster rate than in the public sector. This in turn is likely a reflection of the poorer quality of education in public schools. In general, Jordan's accomplishments in terms of improving access to education are not matched by improvements in the quality of education: student assessment data show below average learning outcomes.*

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4. Jordan has achieved impressive gains in access to education over the past decades. Enrolment in primary education, already universal in the 1970s, has remained universal<sup>1</sup>, and enrolment in all other levels of education has increased consistently over the decades (see Table 1). The increases in gross enrolment ratio (GER) amount to roughly 30 percentage points between 1971 and 2012 for each of pre-primary, secondary, and tertiary education. This translates to roughly a tripling of the pre-primary and tertiary GERs over the decades, and a 150 percent increase in the secondary GER. Another way to depict the impressive gains in education in Jordan since 1970 is to track the number of years of schooling completed by adults above the age of 15. Thus, according to Barro and Lee (2013), the number of years of schooling in Jordan went up from 3.4 years in 1970 to 9.1 years in 2010. In addition, Iqbal and Kiendrebeogo (2014) track the trends in education attainment between 1970 and 2010 for Jordan and other countries with similar years of schooling to Jordan in 1970, i.e. China, Ghana, Lesotho, Mexico, and Mongolia. They show that Jordan did better in terms of increasing education attainment between 1970 and 2010 than all its 1970 comparators (see Figure 1).

**Table 1: Jordan's gross enrolment ratios for all levels of education, 1970-2012**

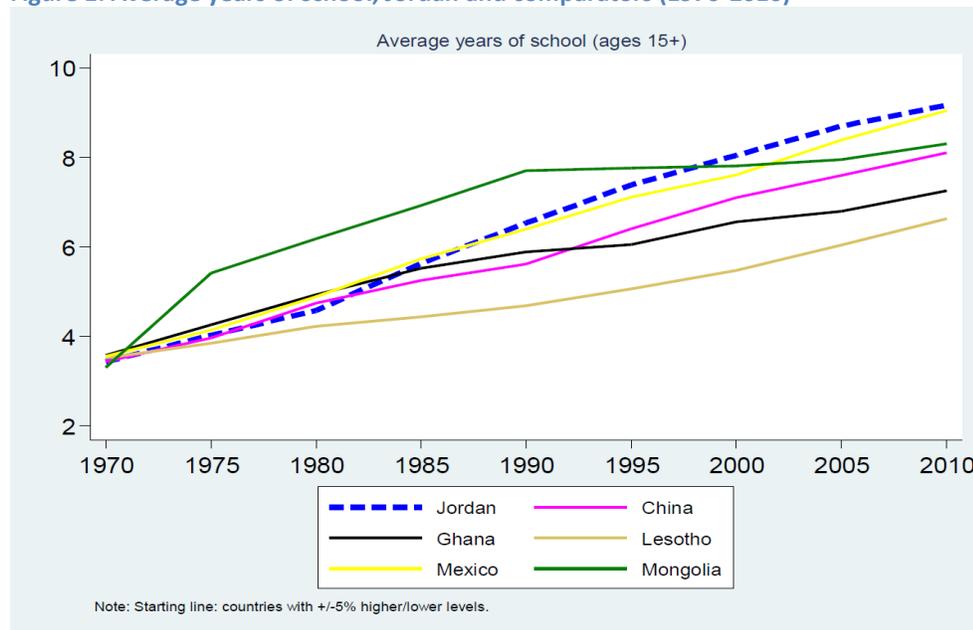
Gross enrolment ratio	1971-80	1981-90	1991-2000	2001-12
Pre-primary	10.4	15.5	25.9	34.0
Primary	109.9	103.4	101.0	102.9
Secondary	61.6	78.4	82.7	91.1
Tertiary	7.4	20.0	21.8	40.2

Source: UNESCO Institute of Statistics

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<sup>1</sup> The primary gross enrolment ratio is well above 100 percent in the 1970s and today closer to 100 percent, reflecting less under-age and over-age enrolment in primary school years.

Figure 1: Average years of school, Jordan and comparators (1970-2010)



Source: Iqbal and Kiendrebeogo (2014), page 15

Note: The comparator countries all had average years of schooling within 5 percent of Jordan's average in 1970.

5. Today, the Jordanian educational ladder consists of 2 years of pre-school education (KG1 and KG2) for 4-5 year-olds, followed by 10 years of compulsory basic education (grades 1-10) for 6-15 year-olds. Following the compulsory cycle, students can choose to enter either comprehensive secondary education or applied secondary education (the latter provided in training centers and as apprenticeships). Comprehensive secondary (hereafter referred to simply as secondary) education lasts 2 years and includes both a vocational and an academic track that students sort into. The Ministry of Education (MOE) regards academic and vocational secondary education as having a common educational base with additional specialized coursework, whereas applied secondary education is geared towards training and preparation for the workplace. Tertiary education therefore follows comprehensive secondary education only. As Table 2 shows, there is some variation in how Jordan compares across the different levels of education in terms of enrolment rates. Thus, while primary, secondary, and tertiary GERs are roughly equivalent to the rates in comparator countries<sup>2</sup>, pre-primary enrolment rates in Jordan are on the low side.

Table 2: Gross enrolment ratios for Jordan and comparators, 2012-13

Gross enrolment ratio	Jordan	Tunisia	Croatia	Thailand
Pre-primary	34.2	40.0	63.31	118.52
Primary	98.4	110.3	96.82	92.85
Secondary	87.8	90.6	98.43	86.98
Tertiary	46.6	35.2	61.63	51.23

Source: UNESCO Institute of Statistics

Note: "Secondary" here includes both comprehensive and applied secondary education

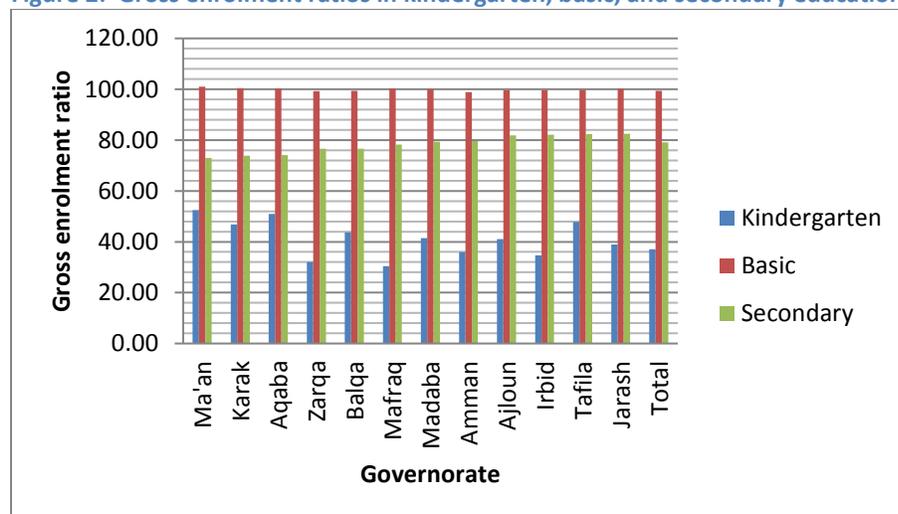
<sup>2</sup> These comparators are a subset of those chosen for the Jordan Systematic Country Diagnostic (SCD). The criteria employed in choosing comparator countries for the SCD were: small, upper-middle/high income, ambitions for manufacturing, dependent on current or capital inflows, and energy importers.

### Box 1. Early Childhood Education in Jordan

The Middle East and North Africa (MENA) region stands out as a region that until now has not invested sufficiently in early childhood education, with gross enrolment in pre-primary education at 27 percent in 2011<sup>3</sup>. The only region with a lower pre-primary enrolment rate is sub-Saharan Africa, at 18 percent. In addition to having low overall enrolment in pre-primary education, the MENA region has the lowest public provision of pre-primary, with only 29 percent of pre-primary enrolment in public programs and 71 percent in private preschools and nurseries. Thus, in Jordan, early childhood education was provided by the private sector until 1999, and the Government of Jordan only recently focused on including kindergarten classrooms in public schools. Today, investments in early childhood development have witnessed considerable growth worldwide due to national and international attention to the importance of the early years and their impact on future welfare outcomes. Though only 22 percent of 3-4 year-olds in Jordan attend early childhood education (KG 1), this share rises to around 60 percent for 5-6 year-olds (KG 2). In addition, a national campaign to universalize pre-primary education has been launched, so that a year of early childhood education (KG 2) will be added to the compulsory education cycle over a five-year period, and starting with underprivileged areas.

6. In terms of variation in GERs across governorates in Jordan, Figure 2 shows that enrolment in basic education is near universal across all governorates (average national GER of 99.4 percent). The kindergarten GER averages 37 percent nationwide, and there is a more than twenty percentage point gap between the top governorate Maan (GER of 52 percent) and the bottom governorate Mafraq (GER of 30 percent). The secondary GER averages 79 percent nationwide, and this time Maan ranks lowest with a GER of 73 percent that is almost ten percentage points lower than the secondary GER in Jarash. There are, in other words, no clear patterns in variation of GER across different levels of education amongst the governorates. But ten to twenty percentage point gaps demonstrate large geographic variation in GERs for a relatively small country such as Jordan. GERs show some variation by gender as well. As Figure 3 shows, GERs are slightly higher for girls than boys at the kindergarten and basic education levels, and by the time students reach secondary education, the gap has widened to an 8.7 percentage point gap in GERs in favor of females over males.

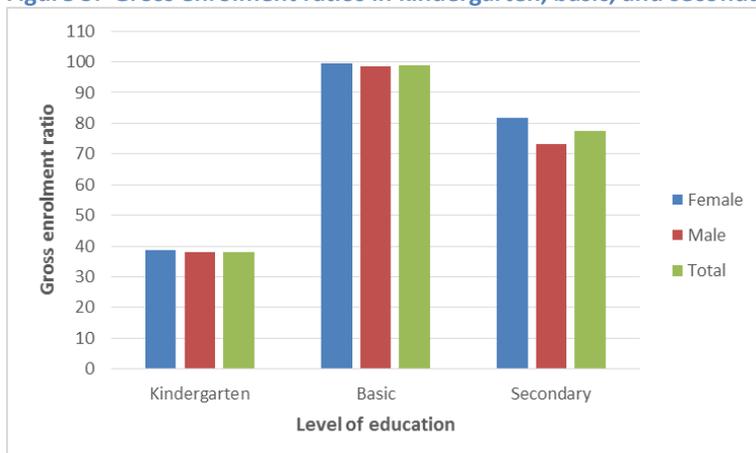
Figure 2: Gross enrolment ratios in kindergarten, basic, and secondary education, by governorate (2010-11)



Source: EMIS, MoE. Governorates are ranked by increasing secondary GER.

<sup>3</sup> This write-up draws extensively on El-Kogali and Krafft. 2015. *Expanding Opportunities for the Next Generation: Early Childhood in the Middle East and North Africa*. World Bank: Washington DC.

**Figure 3: Gross enrolment ratios in kindergarten, basic, and secondary education, by gender (2013-14)**



Source: EMIS, MoE

7. Schools in Jordan are run either by the Ministry of Education; other governmental entities (such as the Ministry of Religious Endowments, Ministry of Higher Education, Ministry of Social Development, and Ministry of Defense); the private sector; or the United National Relief and Works Agency (UNRWA), which runs schools for Palestinian refugees. Schools are categorized as either Kindergarten, basic, or secondary schools – based on the highest grade available at the school. In addition, schools can enroll girls only, boys only, or be co-educational. Public schools are co-educational only through grade 4 (and in some communities, only through grade 2) after which girls are taught in separate schools predominantly by female teachers and boys by males teachers.

8. As Table 3 shows, Jordan had a total of 6,614 schools in academic year 2013-14, of which 3,694 (or 56 percent) were run by the Ministry of Education and 2,708 (or 41 percent) by the private sector. The share of the private sector in education in Jordan is, in other words, sizeable. Other governmental entities were only in charge of a total of 38 schools, and UNRWA administered 174 schools. All UNRWA schools but one are basic schools, while the majority of schools administered by other governmental entities are secondary schools. Almost all Kindergartens (1,542 out of a total of 1,544) are run by the private sector – though over 800 MOE basic and secondary schools have Kindergarten classes. Roughly two thirds of MOE schools are basic schools and one third secondary schools. Finally, close to half of MOE schools are co-educational, while the overwhelming majority (98 percent) of private schools are co-educational.

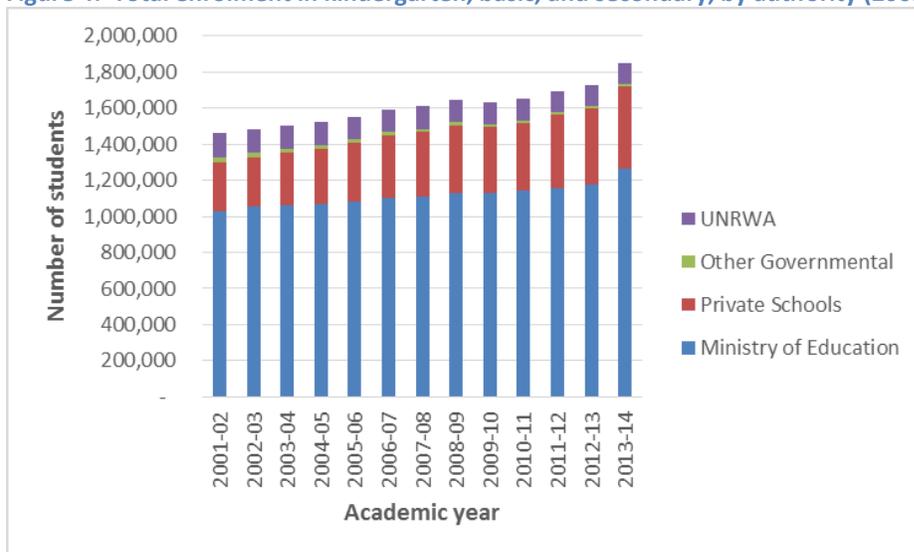
9. In academic year 2013-14, total enrolments across all education levels – kindergarten, basic, and secondary – amounted to 1.8 million students in all four authorities, of which 1.3 million were in MOE schools. Total enrolments grew over the 2001-14 period by 23 percent, reflecting roughly 23 percent enrolment growth in MOE schools, 66 percent growth in private schools, and downward trends in enrolment in UNRWA schools and schools run by other government entities (see Figure 4). The impressive growth in private sector enrolment is even clearer in Figure 5, which shows that the share of private schools in total enrolment is the only one that increased over 2001-14, translating to declines in the shares of the other authorities, including MOE (the latter declining from 70.6 to 68.5 percent of total enrolment).

**Table 3: Jordan's schools, by authority, type, and gender (2013-14)**

Absolute numbers																				
Gender	Ministry of Education				Private Schools				Other Governmental				UNRWA				Grand Total			
	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total
Male	-	782	570	1,352	-	8	38	46	-	1	33	34	-	85	1	86	-	876	642	1,518
Female	-	246	302	548	-	4	16	20	-	1	2	3	-	71	-	71	-	322	320	642
Co-educational	2	1,366	426	1,794	1,542	913	187	2,642	-	1	-	1	-	17	-	17	1,544	2,297	613	4,454
Total	2	2,394	1,298	3,694	1,542	925	241	2,708	-	3	35	38	-	173	1	174	1,544	3,495	1,575	6,614
Percent share of type of school, by authority																				
Gender	Ministry of Education				Private Schools				Other Governmental				UNRWA				Grand Total			
	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total
Male	0.0	57.8	42.2	100	0.0	17.4	82.6	100	0.0	2.9	97.1	100	0.0	98.8	1.2	100	-	57.7	42.3	100
Female	0.0	44.9	55.1	100	0.0	20.0	80.0	100	0.0	33.3	66.7	100	0.0	100.0	0.0	100	-	50.2	49.8	100
Co-educational	0.1	76.1	23.7	100	58.4	34.6	7.1	100	0.0	100.0	0.0	100	0.0	100.0	0.0	100	34.7	51.6	13.8	100
Total	0.1	64.8	35.1	100	56.9	34.2	8.9	100	0.0	7.9	92.1	100	0.0	99.4	0.6	100	23.3	52.8	23.8	100
Percent share of gender of school, by authority																				
Gender	Ministry of Education				Private Schools				Other Governmental				UNRWA				Grand Total			
	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total	KG	Basic	Secondary	Total
Male	0.0	32.7	43.9	36.6	0.0	0.9	15.8	1.7	-	33.3	94.3	89.5	-	49.1	100.0	49.4	0.0	25.1	40.8	23.0
Female	0.0	10.3	23.3	14.8	0.0	0.4	6.6	0.7	-	33.3	5.7	7.9	-	41.0	0.0	40.8	0.0	9.2	20.3	9.7
Co-educational	100.0	57.1	32.8	48.6	100.0	98.7	77.6	97.6	-	33.3	0.0	2.6	-	9.8	0.0	9.8	100.0	65.7	38.9	67.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0

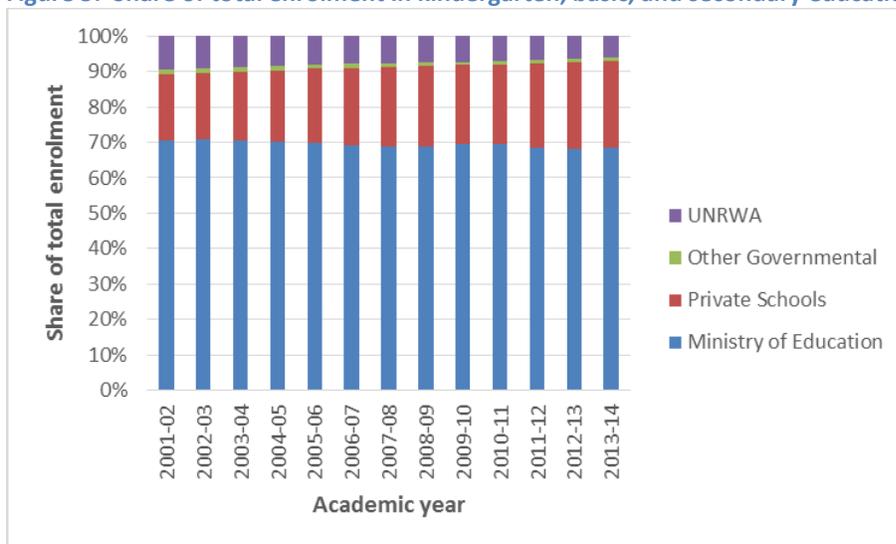
Source: Ministry of Education (2015) page 10

Figure 4: Total enrolment in kindergarten, basic, and secondary, by authority (2001-14)



Source: Education Management Information System (EMIS), Ministry of Education

Figure 5: Share of total enrolment in kindergarten, basic, and secondary education, by authority (2001-14)



Source: Education Management Information System (EMIS), Ministry of Education

10. A closer look at the breakdown of schools by governorate shows that there is great variation across governorates in terms of MOE share of schools in the governorate. The two main categories are MOE and private schools, as UNRWA and other governmental schools constitute only 2.7 and 2.5 percent of schools nation-wide. Thus, as Table 4 shows, the share of MOE-administered schools in total number of schools is highest in Mafraq at 87.9 percent, and lowest in Amman at 36.7 percent. Amman has by far the highest share of private schools amongst all governorates, amounting to 58.8 percent of all schools.

**Table 4: Schools by governorate and authority, 2013-14 (percent share of total in governorate)**

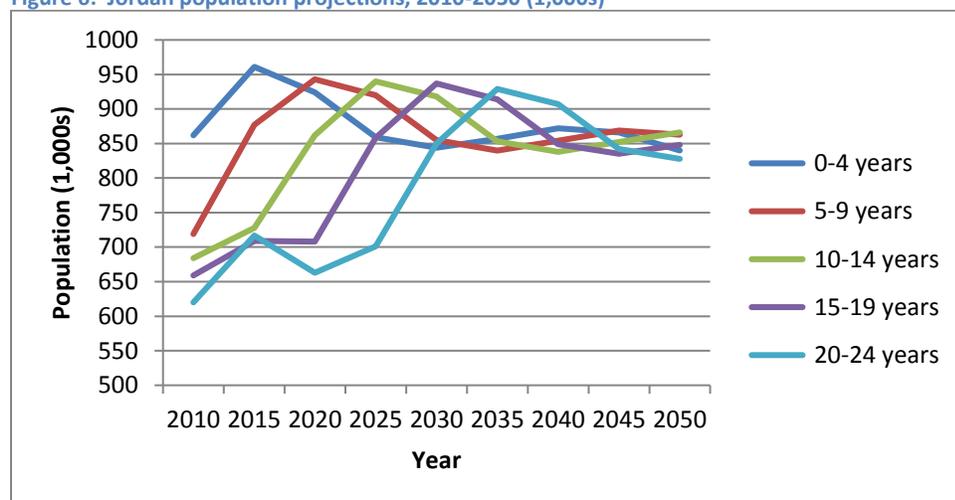
Governorate	Ministry of Education	Private Education	UNRWA	Other Governmental	Total
Mafrq	87.9	11.2	0.4	0.6	100.0
Tafilah	83.1	8.1	0.0	8.8	100.0
Maan	79.2	5.9	0.0	14.8	100.0
Karak	78.4	17.8	0.0	3.8	100.0
Jerash	72.7	23.1	3.3	0.8	100.0
Madaba	70.5	24.7	2.1	2.6	100.0
Ajloun	63.4	34.0	0.0	2.6	100.0
Balqa	55.7	35.6	4.6	4.1	100.0
Irbid	55.1	39.7	2.7	2.5	100.0
Aqaba	54.5	35.5	0.0	9.9	100.0
Zarqa	50.7	44.3	4.0	1.0	100.0
Amman	36.7	58.8	3.9	0.6	100.0
Sub-total	55.8	39.0	2.7	2.5	100.0

Source: EMIS, MOE

Governorates are ranked by decreasing share of MOE schools in total.

11. As mentioned above, total enrolment grew by 23 percent over the 2001-14 period, and Figure 6 shows population projections for Jordan through 2050. Narrowing in on the age ranges most relevant for the education system, i.e. age 5-9, 10-14, and 15-19 years, Figure 6 shows that the population is projected to grow significantly through 2020, 2025, and 2030 respectively. Thus, at their peak, 5-9 year-olds are projected to number 7.5 percent more than in 2015; 10-14 year-olds 29.1 percent more than in 2015; and 15-19 year-olds 32.2 percent more. In other words, the education system in Jordan will be expanding substantially in the foreseeable future.

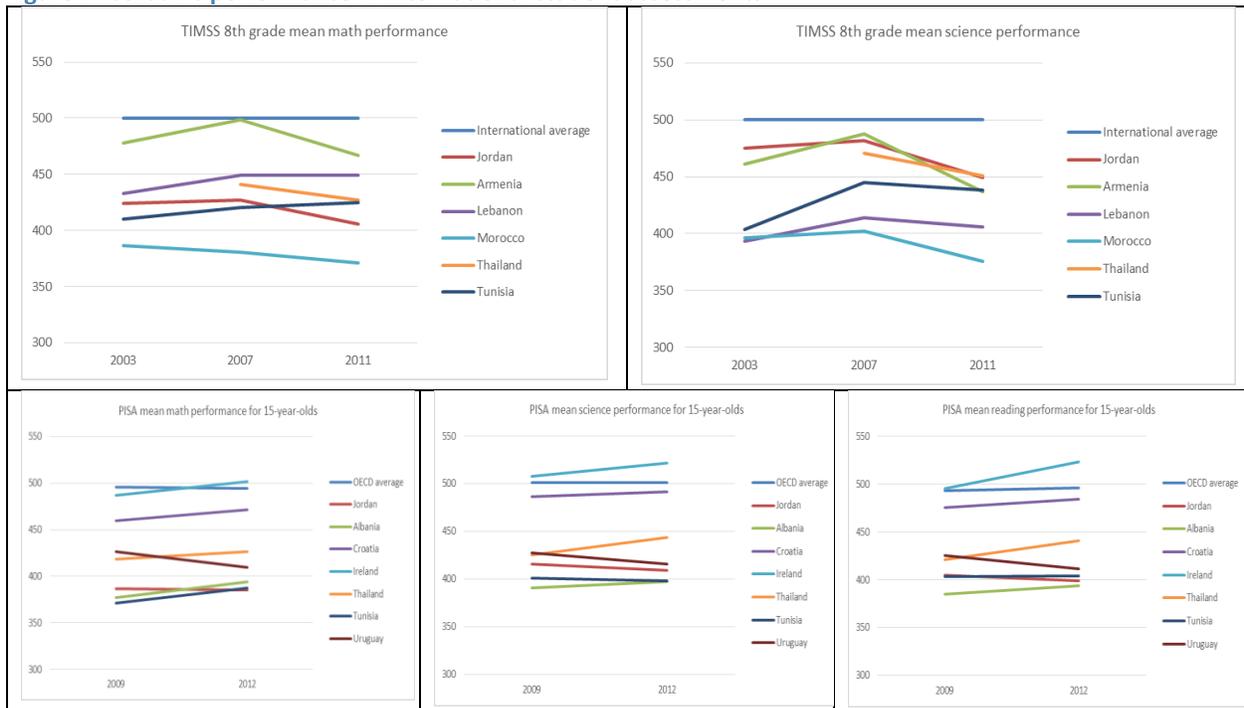
**Figure 6: Jordan population projections, 2010-2050 (1,000s)**



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2012 Revision

12. It is not clear, however, to what degree the enrolment growth will take place in the public versus the private education sector. As described earlier, though enrolment has grown over the past decade, it has grown at a faster rate in the private than in the public sector, and the share of the private sector in total enrolment is increasing. This is probably the result of households, particularly in Amman, resorting to the private sector as a more likely provider of high quality education. In general, the quality of education in Jordan is relatively low: the country has participated in several international student assessments over the years, including the Trends in International Mathematics and Science Study (TIMSS) and the Program for International Student Assessment (PISA), which aim to measure actual learning achieved and competencies acquired in schools. In TIMSS, Jordan scores below the international average, although better than many of its comparators in science (though not in mathematics). Worryingly, Jordan's scores in TIMSS declined between 2007 and 2011 (see Figure 7). In PISA, Jordan scores below the OECD average, below most of its comparators, and exhibits a decline between 2009 and 2012 (Figure 7). However, more detailed analysis of the 2009 PISA results for Jordan, for example, shows that there is a statistically significant difference (23 points) in reading performance between private and public school students in favor of the private school students<sup>4</sup>.

**Figure 7: Jordan's performance in international student assessments**

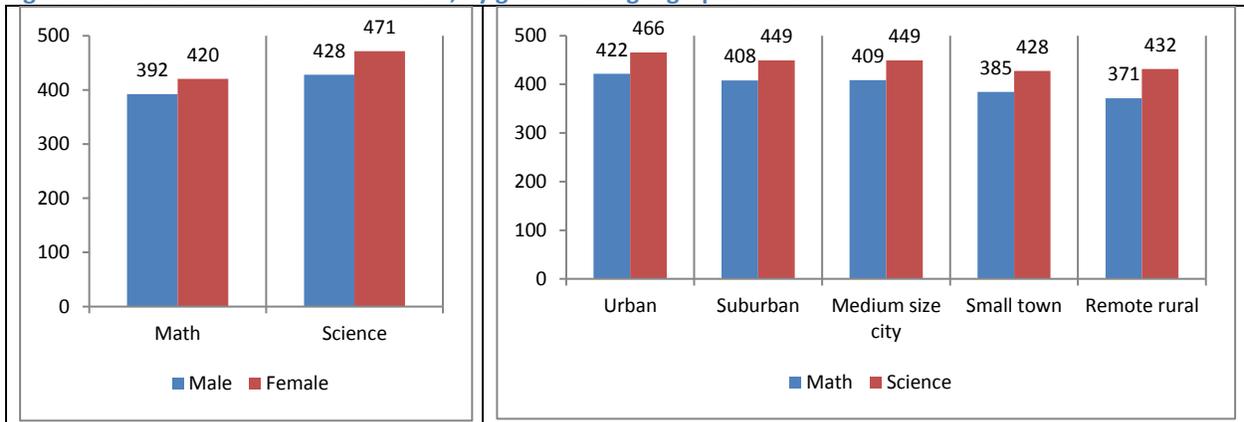


Source: World Bank EdStats Database

13. Jordan also exhibits variation in its 2011 TIMSS scores by gender and geographic location. As Figure 8 shows, girls outperform boys in both math and science. In addition, urban areas stand apart in terms of student learning outcomes in both math and science, with the next ranked grouping being suburban areas and medium size cities, followed after a gap by the final grouping that includes small towns and rural areas. The issue of geographic variation in terms of learning outcomes is one that this report will return to in a later section.

<sup>4</sup> OECD. 2010. *PISA 2009 Results: What Makes a School Successful? Resources, Policies, and Practices (Volume IV)*, Table IV.3.9.

Figure 8: Variation in 2011 TIMSS scores, by gender and geographic location



### III. The Public Education Learning Environment

*School size, class size, and student-teacher ratio are key education system indicators that the Jordanian Ministry of Education is concerned with – particularly in the context of an influx of Syrian refugee students into the public education system. In fact, school size in Jordan is small on average, and class size and student-teacher ratio are today comparable to OECD averages – and all three indicators are on a decreasing trend. Very small schools are mainly a rural phenomenon but also result from the need to resort to renting buildings due to lack of land for construction of schools. Overcrowded classrooms are very much an urban phenomenon limited to a few governorates. However, tawjihi pass rates are not associated with school size, class size, and student-teacher ratio, while being negatively correlated with location in certain governorates, male schools, and rented schools.*

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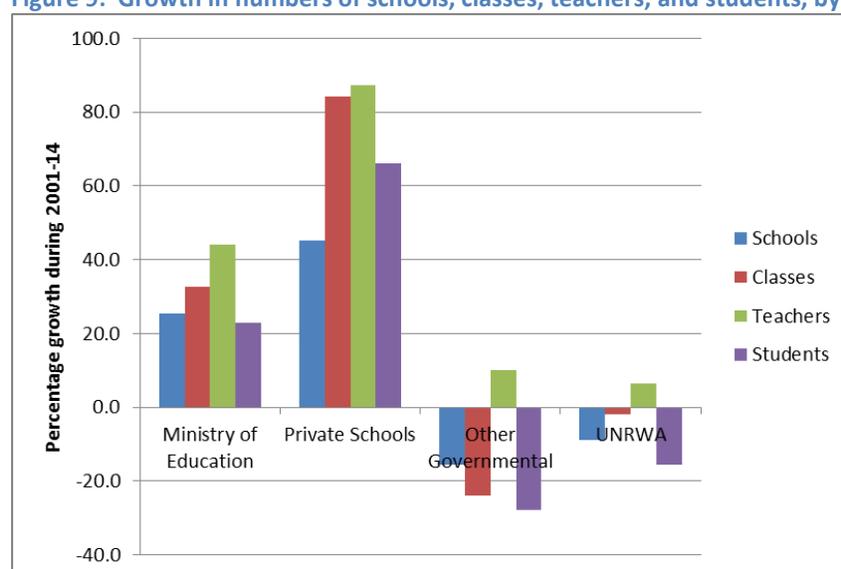
14. Cognizant of the relatively low learning outcomes achieved by the education system, education policymakers in Jordan are concerned with a set of issues revolving around basic attributes of the system, i.e. school size, class size, and student-teacher ratios. On the one hand, policymakers are concerned with the number of small schools, partly as these tend to be costly to operate, but also in the belief that they may potentially have a negative impact on students' learning outcomes. On the other hand, policymakers are concerned about overcrowded classrooms – again, in the belief that they result in poor learning outcomes for students. The Syria crisis with the associated influx of Syrian refugee children into Jordanian schools has made the issue of overcrowded schools and classrooms all the more pressing for Jordanian policymakers. Finally, Jordanian policy makers recognize that teachers are the key drivers in achieving student learning and want to ensure that a sufficient number of teachers is available to students.

15. According to the Government's *Jordan Response Plan for the Syria Crisis 2016-2018*, Jordan hosted about 630,000 Syrian refugees by the end of 2015, 83 percent of whom settled in host communities, particularly in the urban area of Amman and the northern governorates of Jordan, with the remainder in refugee camps. Syrian children, if attending school, are either in schools in the refugee camps, or integrated into Jordanian public and private schools. In most instances where additional Syrian students result in overcrowding in public schools, a second shift is introduced that is dedicated to the Syrian students. Data at the end of 2014 indicate a total of 129,058 Syrian refugee children in public schools in Jordan, of which 23,226 (18 percent) are in schools in refugee camps; 59,627 (46 percent) in public schools (regular shift); and 46,205 students (36 percent) in second shifts in public schools. The number of Syrian refugee children in public schools went up to 145,458 by the end of 2015, but the breakdown of 18 percent enrolled in camps and 82 percent in host communities remained. Therefore, the ratio of Syrian to Jordanian students in host community MOE schools (whether regular or second shift) is roughly 1:10. For students in refugee camp schools and in public school second shifts, additional teachers are hired. For students in regular shift public schools, an important concern is overcrowding and the impact this would have on the quality of education for all students in the class, both Jordanian and Syrian. (Financial implications of the Syrian refugee students will be discussed in the next section.)

16. It is therefore important to gain a better understanding of Jordan's education system in terms of schools, classes, and teachers over recent years. Over the 2001-14 period, private schools show impressive growth in numbers of schools, classes, teachers, and students, and MOE shows sizeable growth as well. Enrolments declined in non-MOE governmental schools as well as in UNRWA, and so schools under these authorities have declined in number over this period as well, as have numbers of classes –

though numbers of teachers did increase slightly (see Figure 9). Interestingly, the growth in the number of teachers shows the highest growth rate across all four authorities.

**Figure 9: Growth in numbers of schools, classes, teachers, and students, by authority (2001-14)**



Source: EMIS, MOE

17. Beyond changes in absolute numbers of schools, classes, teachers, and students, it is important to consider how the basic efficiency indicators of the system are faring, i.e. school size, class size, and student-teacher ratio (STR). As Table 5 shows, all three indicators decreased in size over the period 2001-14 for all authorities – with the exception of private school size, which increased. Table 6 provides the actual school size, class size, and STR over the years. It shows that UNRWA schools and schools run by other governmental entities are the largest in size in Jordan, followed by MOE schools, and finally private schools. Thus, even with the increases in school size in the private education sector, average school size in 2014 remains relatively small at 167 students. Table 6 further shows that class size is largest in UNRWA schools, followed by MOE and other governmental schools, with the smallest class sizes observed in private schools. Across all authorities, class size has declined over the 2001-14 period. Finally, STR is largest in UNRWA schools, followed by MOE and private schools, and last come other governmental schools. Student-teacher ratios have also declined over the 2001-14 period for all authorities. In other words, for all education system efficiency indicators, the trend is towards smaller values – with the exception of private school size.

**Table 5: Percent growth rate in school size, class size, and student-teacher ratio, by authority (2001-14)**

	Ministry of Education	Private Schools	Other Governmental	UNRWA	Overall
School size	-1.95	14.34	-14.64	-7.23	-3.40
Class size	-7.34	-9.87	-5.12	-13.93	-10.47
Student-teacher ratio	-14.76	-11.31	-34.54	-20.60	-15.97

Source: EMIS, MOE

**Table 6: Trends in school size, class size, and student-teacher ratio, by authority (2001-14)**

		Ministry of Education	Private Schools	Other Governmental	UNRWA	Overall
2001-2002	School size	349	146	486	712	289
	Class size	29	23	28	40	28
	Student-teacher ratio	19	17	16	33	19
2002-2003	School size	351	146	485	704	289
	Class size	29	23	27	39	28
	Student-teacher ratio	19	17	16	32	19
2003-2004	School size	348	148	423	702	287
	Class size	29	23	26	39	28
	Student-teacher ratio	18	16	14	31	19
2004-2005	School size	343	150	405	732	284
	Class size	28	23	26	38	28
	Student-teacher ratio	18	16	14	31	18
2005-2006	School size	346	155	374	698	284
	Class size	28	22	20	37	27
	Student-teacher ratio	18	16	14	29	18
2006-2007	School size	342	163	392	714	285
	Class size	28	23	22	38	27
	Student-teacher ratio	18	16	13	30	18
2007-2008	School size	338	166	363	714	284
	Class size	28	22	23	38	27
	Student-teacher ratio	17	16	12	29	17
2008-2009	School size	342	170	353	708	287
	Class size	28	23	24	37	27
	Student-teacher ratio	17	16	12	28	17
2009-2010	School size	335	171	91	689	279
	Class size	27	21	27	35	26
	Student-teacher ratio	16	15	11	27	16
2010-2011	School size	333	166	160	682	276
	Class size	27	21	45	35	26
	Student-teacher ratio	16	15	18	26	16
2011-2012	School size	331	164	417	661	274
	Class size	27	21	27	34	25
	Student-teacher ratio	16	15	10	26	16
2012-2013	School size	331	163	406	652	272
	Class size	26	21	26	34	25
	Student-teacher ratio	16	15	11	25	16
2013-2014	School size	342	167	415	660	279
	Class size	27	21	27	34	25
	Student-teacher ratio	16	15	11	26	16

Source: EMIS, MOE

18. In addition, variation in school size, class size, and student-teacher ratio is very much on a regional basis in Jordan, extending beyond simply the urban-rural divide, for example. As Table 7 shows, the different regions of Jordan – Center, North, and South – vary from each other, whether one compares the urban or rural areas of each region. Thus, for all indicators, and whether urban or rural, the value is consistently highest in the Center Region (which includes the capital Amman), followed by the North Region, and finally the South Region.

**Table 7: School size, class size, and student-teacher ratio, by region and geography (2014)**

Region	School size		Class size		Student-teacher ratio	
	Urban	Rural	Urban	Rural	Urban	Rural
Center	595	217	31	19	20	12
North	417	185	27	18	16	11
South	287	157	23	16	12	9

Source: EMIS, MOE

Notes: The Center Region includes the governorates of Amman, Balqa, Zarqa, and Madaba; the North Region includes Irbid, Mafraq, Jarash, and Ajloun; and the South Region includes Karak, Tafila, Maan, and Aqaba.

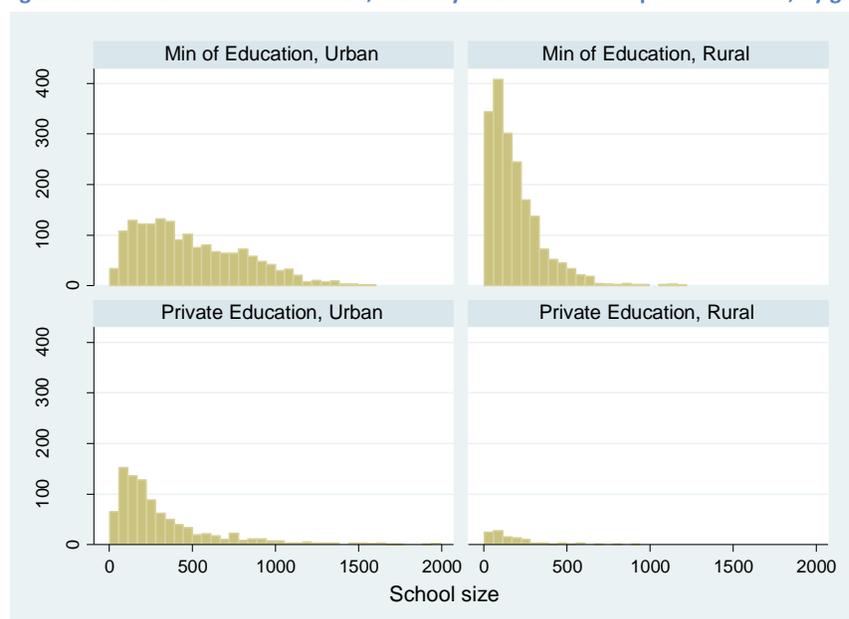
19. Given the above-described downward trend in school size observed in Jordan (with the exception of private schools) the question arises as to the “ideal” school size in terms of achieving better learning outcomes at a lower cost. School size is of course one of many factors that can affect school quality, and debates on school size mostly revolve around the implications of size for school quality and fiscal efficiency. In terms of students’ academic outcomes, school size has an impact on the extent to which schools are able to group students into single-grade groups or into homogenous groups according to their ability or age. One of the comparative disadvantages of larger schools mentioned in the literature is that they may suffer from management difficulties and problems with discipline (Ares Abalde 2014). This is related to another disadvantage found in larger schools, which is that they tend to dilute the possibilities for interpersonal relationships between teachers and students outside the classroom, which could in turn impact learning negatively. On the other hand, larger schools allow for teacher specialization and reduce the administrative burden on teachers as larger schools can invest in specific administrative personnel. In addition, the issue of professional development is a concern for school staff in small remote and rural schools. Finally, small schools may be better at closing the achievement gap between students from different socioeconomic status.

20. One of the most common arguments in favor of large school sizes is that larger schools are more cost-efficient since schools face economies of scale. This applies both to capital spending as well as operating costs (e.g. larger schools can benefit from bulk buying). The results of research on school size and efficiency can be divided into studies that find that schools do indeed face economies of scale (and so larger schools are more efficient) and those that find a *U-shaped* relationship between size and costs (indicating that while smaller schools initially face economies of scale when increasing school size, these turn into diseconomies beyond a critical number of students). In addition, the definition of what constitutes a small versus a large school is often vague, and varies from one study to the next. Definitions of large schools, for instance, range from schools with 800 students or more to schools with more than 2,000 or even 3,200 students. In addition, optimal school size may vary between primary and secondary education: Leithwood and Jantzi (2009) find that optimal school sizes at elementary and secondary levels are 500 and 1,000, respectively. They also suggest that optimal school sizes are smaller when schools have a large proportion of disadvantaged students (300 for elementary and 600 for secondary schools).

21. Comparing the average MOE school size of 342 in Jordan to either the optimal size of 500 or 1,000 for elementary and secondary schools, respectively, suggests that schools in Jordan are small on average. The MOE categorizes schools as basic or secondary according to the highest grade in the school. In other words, any school that has tenth grade or lower as the highest grade in the school is categorized as a basic

school, and any school that includes either eleventh or twelfth grade is a secondary school<sup>5</sup>. In practice, only about 20 percent of MOE basic schools have tenth grade as the highest grade, while the overwhelming majority of secondary schools have twelfth grade as the highest grade. At the same time, however, only about 9 percent of MOE secondary schools start at the eleventh grade, with as many as 26 percent extending all the way through to Kindergarten, so that it is really not possible to speak of basic and secondary schools as distinct categories in Jordan. Beyond the relatively low average school size, as Figure 10 shows for both basic and secondary schools combined, the distribution of schools is skewed towards smaller school size as well. This is less stark for MOE urban schools and more so for MOE rural schools (as would be expected) as well as private urban schools.

Figure 10: Distribution of school size, Ministry of Education and private schools, by geographic location (2014)



Source: EMIS, MOE

22. Smaller classes are often seen as beneficial because they allow teachers to focus more on the needs of individual students and reduce the amount of class time needed to deal with disruptions. Yet, while there is some evidence that smaller classes may benefit specific groups of students, such as those from disadvantaged backgrounds<sup>6</sup>, overall, evidence of the effect of differences in class size on student performance is weak. In addition, according to recent findings from the 2013 OECD Teaching and Learning International Survey (TALIS), smaller classes are not necessarily related to greater job satisfaction for teachers. It is not so much the number of students but rather the type of students in a teacher’s class that has the strongest association with teachers’ self-efficacy and job satisfaction. Teachers reported being most satisfied with their job when they have no students with behavioral problems in their classroom and least satisfied with their job when the proportion of students with behavioral problems in their classroom reaches more than 30 percent. A similar decrease in job satisfaction is not seen when

<sup>5</sup> The MOE EMIS further classifies secondary schools into academic (84 percent), academic and technical (14 percent), and technical schools (2 percent). Given the low share of purely technical secondary schools, this discussion encompasses all types of secondary schools combined.

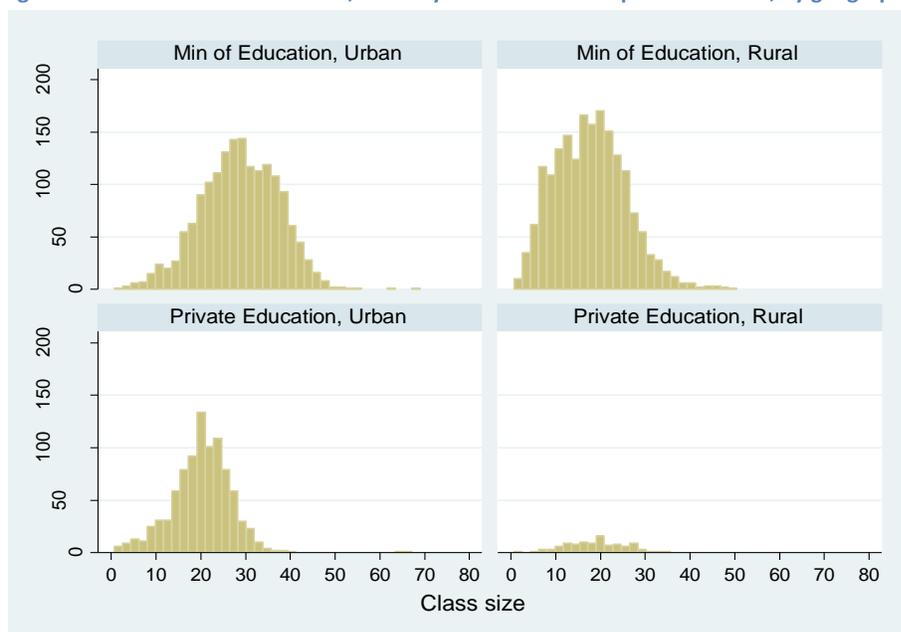
<sup>6</sup> OECD. 2014. *Education at a Glance 2014: OECD Indicators*.

classes are larger. However, there is also evidence that suggests a positive relationship between smaller classes and more innovative teaching practices<sup>7</sup>.

23. The ratio of students to teaching staff indicates how resources for education are allocated. Smaller student-teacher ratios often have to be weighed against higher salaries for teachers, investing in their professional development, greater investment in teaching technology, or more widespread use of assistant teachers and other paraprofessionals whose salaries are often considerably lower than those of qualified teachers. As larger numbers of children with special needs are integrated into mainstream classes, the increased use of specialized personnel and support services may limit the resources available for reducing student-teacher ratios.

24. Turning to class size and student-teacher ratio in Jordan, the average MOE class size of 27 is only slightly above class size in Jordanian private schools (21) as well as the OECD average for primary public schools (21) and lower secondary schools (24)<sup>8</sup>. The average MOE student-teacher ratio of 16, on the other hand, is roughly the same as the student-teacher ratio in Jordanian private schools (15) as well as the OECD average for primary education (15) and secondary education (13)<sup>9</sup>. Beyond the average, the distribution of class size and student-teacher ratio in MOE urban basic and secondary schools (see Figures 11 and 12) shows a relatively wide spread (compared to urban private schools, for example). Rural MOE class size and student-teacher ratio are similarly varied, and the difference between urban and rural indicators is that the distribution for urban indicators is more skewed towards the larger class size and student-teacher ratio, while it is more skewed towards the smaller values in rural areas (as would be expected).

Figure 11: Distribution of class size, Ministry of Education and private schools, by geographic location (2014)



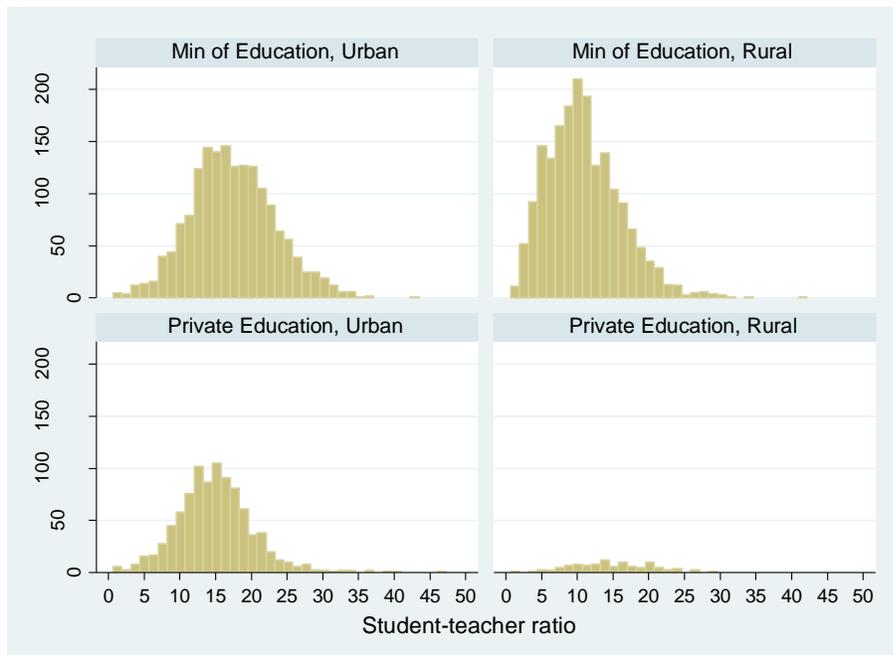
Source: EMIS, MOE

<sup>7</sup> OECD. 2014. *Education at a Glance 2014: OECD Indicators*.

<sup>8</sup> OECD. 2014. *Education at a Glance 2014: OECD Indicators*, Table D2.1. “Average class size, by type of institution and level of education (2012)”, page 450.

<sup>9</sup> OECD. 2014. *Education at a Glance 2014: OECD Indicators*, Table D2.2. “Ration of students to teaching staff in educational institutions (2012)”, page 451.

Figure 12: Distribution of student-teacher ratio, Ministry of Education and private schools, by geographic location (2014)



Source: EMIS, MOE

25. In other words, in general, the emerging picture for the Jordanian education system’s basic attributes is not one of large schools and overcrowded classrooms. On the contrary, based on both averages and distributions of school size, schools in Jordan are relatively small, whether in urban or rural areas. Regarding class size, 27 students on average is only somewhat larger than the OECD average, and looking at the distributions in Figure 10, it is clear that very small class sizes are more common than very large class sizes, especially in rural areas. Similarly, average STR in Jordan is on par with the OECD average, and the distribution shows a higher prevalence of very small STR than very large STR.

26. It is therefore important to examine at a more granular level the occurrence and attributes of the very small schools and overcrowded classrooms that the MOE policy makers are concerned about. Table 8 provides a breakdown of MOE schools with fewer than 100 students, a total of 774 schools in 2014. As the table shows, by far the largest number of these small schools is in Mafraq in the north, followed at a distance by Amman, Irbid, and Maan. In addition, the overwhelming majority are in rural areas – as would be expected. What is surprising is the disproportionately small number of female small schools, even accounting for the fact that there are fewer female than male or mixed schools in the country. This might indicate that schools for girls are not opened if there are not sufficiently large numbers of girls – and that this does not hold for boys. Most importantly, however, is the fact that roughly equal numbers of small schools are owned by MOE as they are rented. In other words, the concern for policy makers regarding small schools may have more to do with the fact that they result from having to resort to rental of inappropriate small buildings in the absence of land for school construction – for example in densely populated areas such as Amman.

**Table 8: Characteristics of schools with fewer than 100 students, 2014**

	Total	Geography		School gender			School ownership	
		Urban	Rural	Female	Male	Mixed	Owned	Rented
Ajloun	26	2	24	0	4	22	5	20
Amman	90	8	82	4	29	57	53	37
Aqaba	17	1	16	3	2	12	15	2
Balqa	41	9	32	4	14	23	25	15
Irbid	86	26	60	6	18	62	21	65
Jerash	52	6	46	5	13	34	26	23
Karak	79	17	62	3	25	51	39	39
Maan	81	23	58	8	26	47	45	35
Madaba	50	4	46	1	12	37	32	17
Mafraq	178	6	172	7	51	120	80	94
Tafilah	36	8	28	0	8	28	17	19
Zarqa	38	7	31	0	5	33	18	17
Total	774	117	657	41	207	526	376	383

Source: EMIS, MOE

27. In terms of understanding better where overcrowded classrooms are found and how they might be addressed, Table 9 shows that overcrowded classrooms, i.e. class size of 40 or above, are found predominantly in the urban areas of Amman and Zarqa. Contrary to small schools, female schools are over-represented in schools with overcrowded classrooms. Schools with overcrowded classrooms are also overwhelmingly amongst the schools owned by the MOE as opposed to those it rents. Finally, schools with overcrowded classrooms are predominantly schools that run only one shift. Given these last two observations, it would seem that one trade-off MOE needs to consider is the trade-off between overcrowded single shift schools versus putting in place a second shift.

**Table 9: Characteristics of schools with average class size greater than 40 students, 2014**

	Total	Geography		School gender			School ownership		Single shift schools
		Urban	Rural	Female	Male	Mixed	Owned	Rented	
Ajloun	2	2	0	0	1	1	0	2	2
Amman	76	72	4	27	31	18	75	1	58
Aqaba	4	4	0	0	2	2	4	0	3
Balqa	13	7	6	3	6	4	13	0	13
Irbid	20	18	2	7	10	3	17	2	18
Jerash	1	0	1	0	0	1	0	1	1
Karak	3	2	1	0	2	1	2	1	3
Maan	3	2	1	1	1	1	1	2	3
Madaba	1	1	0	0	1	0	1	0	1
Mafraq	6	2	4	1	1	4	3	3	6
Tafilah	0	0	0	0	0	0	0	0	0
Zarqa	51	46	5	14	21	16	50	1	39
Total	180	156	24	53	76	51	166	13	147

Source: EMIS, MOE

28. Returning to the issue of Syrian students causing or adding to the overcrowding of schools and classes, it is clear that this phenomenon is localized. To begin with, the highest numbers of Syrian refugee children enrolled in Jordanian public schools are in the northern governorates of Irbid, Mafraq, and Jarash, as well as the central governorates of Zarqa and Amman. As Table 9 shows, both Amman and Zarqa have relatively higher numbers of schools with overcrowded classrooms, so that additional Syrian influx can pose a serious challenge. By contrast, Mafraq is characterized by a large number of small schools and indeed anecdotal reports do not cite overcrowded classes resulting from the Syrian influx as a cause for concern in that governorate.

29. The question remains how school size, class size, and student-teacher ratios are impacting learning outcomes for students in Jordan. Using MOE data on the pass rate of the final secondary exam, the *tawjihi*, Table 10 provides average pass rates by different school characteristics for the 2013 *tawjihi*. The overall pass rate for Jordan was 51.4 percent, with 1,289 secondary schools participating in the exam. Of those, 1,082 were MOE schools and achieved a pass rate of 49.4 percent, while there were 173 private schools with a pass rate of 65.1 percent – another indication of the quality of education differential between public and private schools. Focusing on the MOE schools, the highest pass rates were in Amman and Tafilah (53.4 percent) – though the number of schools varies widely between those two governorates (251 in Amman versus only 28 in Tafilah). Higher pass rates were observed in urban, as opposed to rural, areas; schools owned by MOE, as opposed to rented schools (of which there were only 8, however); female or co-educational schools, as opposed to male schools; and combined academic and technical schools, as opposed to purely academic or technical.

30. The above average pass rates, while indicative, do not control for the different factors at play and their individual association with pass rates. They also do not allow for an assessment of the potential correlation with school size, class size, or student-ratio. Table 11 therefore provides the results of regressing the *tawjihi* pass rates on different school characteristics. The results show that, controlling for the other factors taken into account, *tawjihi* pass rates are not associated with school size, class size, and student-teacher ratio. The largest *negative* association with *tawjihi* pass rates is found with residing in Aqaba, Jarash, Maan, Madaba, or Zarqa (by comparison with Amman); attending a rented school, as opposed to a school owned by MOE; and attending a male school, as opposed to a female school. In other words, in Jordan, the school attributes of school size, class size, and student-teacher ratio are *not predictive* of one measure of learning outcomes – *tawjihi* pass rates – while the school's governorate, whether it is rented or not, and whether it is a male school are good predictors. Other school attributes either have a negligible or no association with pass rates: residing in a rural versus urban location; attending a co-educational school, compared to a female school; and attending a combined academic & technical, or a pure technical, as compared to a pure academic school.

31. While not being associated with *tawjihi* pass rates, school size, class size and student-teacher ratio do, however, impact spending on public education in Jordan. As mentioned earlier, larger school and class sizes may lead to economies of scale both in terms of capital as well as operating costs. Larger student-teacher ratios, in turn, have a direct impact on the number of teachers in the system. As the next sections will lay out, teacher compensation constitutes by far the largest share of education spending so that policies that affect teachers will have an important impact on spending.

**Table 10: Tawjihi results, by school characteristic, 2013**

	<b>Tawjihi pass rate</b>	<b>No. of schools</b>
<b>Overall</b>	51.4	1289
Ministry of Education	49.4	1082
Private	65.1	173
<b>Ministry of Education</b>		
Governorate		
Ajloun	48.5	41
Amman	53.4	251
Aqaba	40.4	29
Balqa	50.7	89
Irbid	51.4	195
Jerash	43.3	48
Karak	51.4	82
Maan	40.5	49
Madaba	39.6	36
Mafraq	50.8	141
Tafilah	53.4	28
Zarqa	43.4	93
Geographic location		
Urban	51.6	528
Rural	47.4	554
School ownership		
Owned	49.5	1063
Owned & rented	49.7	11
Rented	41.3	8
School gender		
Female	58.3	283
Male	40.1	474
Co-educational	55.3	325
Type of secondary school		
Academic	48.6	891
Academic & techical	54.2	165
Technical	47.0	26

Source: EMIS and MOE

**Table 11: Regression results for *tawjihi* pass rates and school characteristics, 2014**

	<b>Coefficient</b>	<b>Standard Error</b>	<b>t-statistic</b>	<b>p-value</b>
<b>Governorate</b>				
Ajloun	-0.06	0.04	-1.62	0.105
Aqaba	-0.19	0.04	-4.66	0
Balqa	-0.02	0.03	-0.87	0.387
Irbid	-0.05	0.02	-2.6	0.009
Jerash	-0.12	0.03	-3.65	0
Karak	-0.07	0.03	-2.25	0.024
Maan	-0.21	0.04	-5.95	0
Madaba	-0.15	0.04	-3.88	0
Mafraq	-0.05	0.02	-1.85	0.065
Tafilah	-0.06	0.04	-1.31	0.19
Zarqa	-0.11	0.03	-4.27	0
<b>Geography</b>				
Village	-0.04	0.02	-2.45	0.014
<b>School ownership</b>				
Owned & rented	0.01	0.06	0.12	0.902
Rented	-0.17	0.08	-2.26	0.024
<b>School gender</b>				
male	-0.18	0.02	-10.9	0
mixed	0.00	0.02	-0.26	0.792
<b>Type of education</b>				
Academic and technical	-0.06	0.02	-3.07	0.002
Technical	-0.06	0.05	-1.27	0.204
<b>Total number of students</b>				
Total number of students	0.00	0.00	4.59	0
STR	-0.03	0.00	-8	0
Class size	0.01	0.00	3.23	0.001
_cons	0.80	0.04	20.68	0

## IV. Overview of Public Education Spending

*Jordan spends comparable shares of GDP and total public spending on education as the OECD averages, and higher than expected shares when taking its GDP per capita into account. Capital spending in the education sector is classified both under the Ministry of Education as well as under the Ministry of Planning and International Cooperation, with the bulk being treasury-financed spending (as opposed to loans) under the Ministry of Education. The share of capital spending in total education spending is relatively low. This contributes to the fact that recurrent spending on education in Jordan is substantial and equivalent to the country's budgetary commitment (on a recurrent basis) to defense, with other sectors lagging significantly behind. Within the education sector, basic education captures the majority of capital spending and exhibits relatively high recurrent unit costs. Unit costs were one way that the Ministry of Education and donors approached the question of estimating the impact of Syrian refugee students on the Jordanian education system. However, the latest thinking adopts a more "projectized" approach that spans a range of interventions, with the largest ticket items being additional infrastructure investments and hiring of teachers.*

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32. Public education expenditures in Jordan fall primarily under the Jordanian Ministry of Education (MoE), which classifies its spending along eight different programs: 1) administration and support services; 2) kindergarten education; 3) basic education; 4) secondary education; 5) vocational education; 6) special education; 7) social, sport, and educational activities; and 8) eradication of illiteracy and adult education. As is clear from the above program listing, the MOE covers all levels of education in the country with the exception of post-secondary education, for which there is a separate Ministry of Higher Education and Scientific Research, and which is beyond the scope of the present analysis.

33. As Table 12 shows, MOE expenditures amounted to roughly 840 million Jordanian dinars (JD) in 2013, which translates to 3.5 percent of gross domestic product (GDP) and 9.7 percent of total public expenditures. Table 12 further shows that the share of public education spending in GDP has been relatively stable since 2008. On the other hand, the share of total public spending in GDP displays a downward trend, yet education spending seems to have been protected, since its share in total spending increases over the period. By way of comparison, the corresponding OECD average 2011 shares of education spending are 4.2 percent of GDP and 9.5 percent of total public expenditure<sup>10</sup>, i.e. roughly comparable (OECD 2014)<sup>11</sup>.

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<sup>10</sup> OECD 2014. *Education at a Glance 2014*. Indicator B4, Table B4.1. "Total public expenditure on education (2011)".

<sup>11</sup> These figures do not take into account spending on the Vocational Training Corporation (VTC), a semi-governmental organization almost fully financed by the Government and supervised by a Board chaired by the Ministry of Labor. The emphasis of the VTC is on planning, research, and development in technical and vocational education, and it offers training programs to students, apprentices, instructors, as well as teachers. As such, it is outside the purview of the present report. In 2013, its recurrent spending amounted to 8.9 million JD, roughly equivalent to 38 percent of total recurrent spending on vocational education under the MOE.

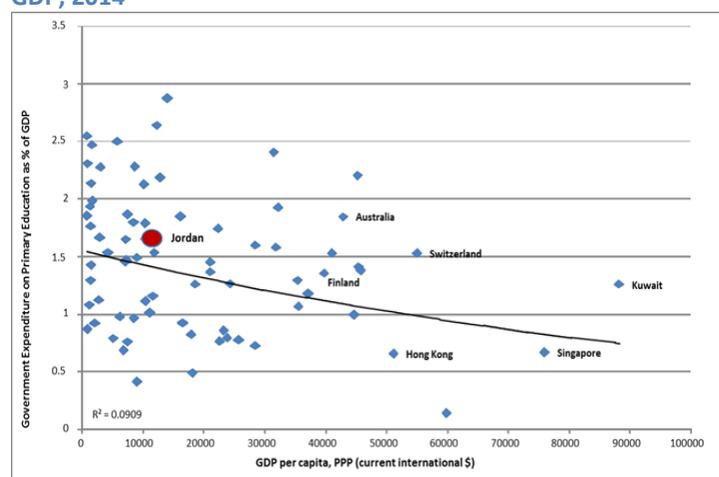
**Table 12: Ministry of Education expenditures, as share of GDP and total education expenditures (2008-13)**

(JD million)	2008	2009	2010	2011	2012	2013
Nominal GDP	15,593	16,912	18,762	20,477	21,966	23,852
Total public expenditures	6,741	7,487	7,260	8,366	8,473	8,718
-- as % of GDP	43.2	44.3	38.7	40.9	38.6	36.6
Ministry of Education expenditures	525	559	591	689	759	842
-- as % of GDP	3.4	3.3	3.1	3.4	3.5	3.5
-- as % of total public expenditures	7.8	7.5	8.1	8.2	9.0	9.7

Sources: Ministry of Finance. July 2014. *General Government Finance Bulletin*, Studies and Economic Policies Directorate, Vol. 17, No. 6, pages 10, 46; and Ministry of Finance. June 2014. *General Budget Final Accounts for Fiscal Year 2013*, pages 503-506

34. There is some evidence that the amount of public resources spent on education depends to some degree on the level of economic development of the country. In other words, countries with different levels of GDP per capita do not spend the same shares of GDP on education. Instead, in richer countries, the share of GDP allocated to public primary education tends to be lower than in poorer countries, while the reverse is observed for secondary education<sup>12</sup>. Figure 13 provides a scatter plot of World Bank data on GDP per capita against UNESCO Institute of Statistics data on public spending on primary education as a share of GDP, as well as a fitted line representing the expected level of public spending as a function of GDP per capita. The line slopes downwards, indicating a smaller share of GDP for primary education the richer the country. Jordan lies above the fitted line, implying that the country spends more than expected for its level of GDP per capita on primary education. Figure 14 provides the parallel scatter plot and fitted line for secondary education, and again Jordan lies above the line, indicating higher than expected spending on secondary education for its per capita GDP.

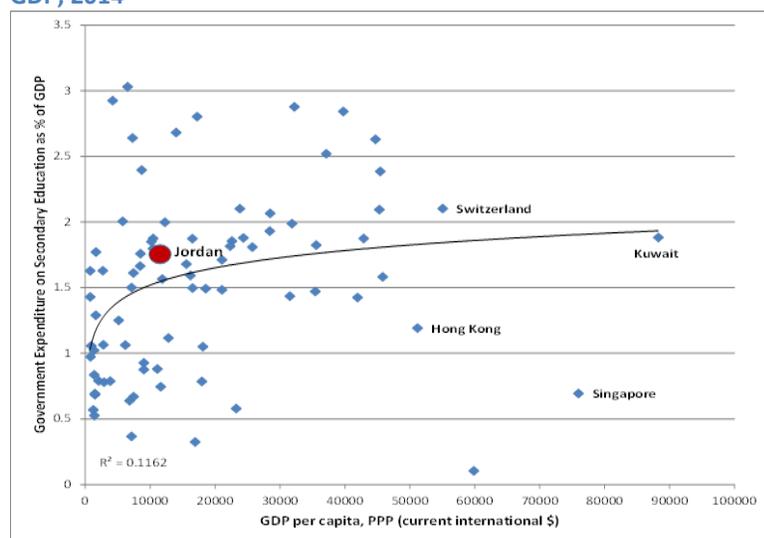
**Figure 13: Correlation between GDP per capita and government spending on primary education as a share of GDP, 2014**



Source: Heejin Kim, Janice and Quentin Wodon. 2015. *Public Education Cost Benchmarking for Jordan*, World Bank, Figure 1(a), page 2.

<sup>12</sup> Heejin Kim, Janice and Quentin Wodon. 2015. *Public Education Cost Benchmarking for Jordan*, World Bank.

Figure 14: Correlation between GDP per capita and government spending on secondary education as a share of GDP, 2014



Source: Heejin Kim, Janice and Quentin Wodon. 2015. *Public Education Cost Benchmarking for Jordan*, World Bank, Figure 1(b), page 2.

## A. Capital Spending

35. In terms of capital spending, budget data distinguish first between capital spending financed by the treasury versus by loans, with treasury-financed spending being the overwhelming majority in 2013 (over 97 percent). The big spending entities in terms of capital spending out of the treasury are the Ministry of Finance and the Ministry of Public Works and Housing, with the Ministry of Education ranking only 8<sup>th</sup> at 3.9 percent of capital spending out of the treasury. In addition, as Table 13 shows, the budget indicates that the Ministry of Education has no capital spending out of loans. This, however, is due to the fact that Ministry of Education loan-financed capital spending falls under the Ministry of Planning and International Cooperation (MOPIC). Indeed, as Table 13 further shows, MOPIC is the conduit for the lion's share of loan-financed capital spending (77 percent in 2013).

36. Table 13 in effect provides a distorted picture on capital spending for the education sector in Jordan, since the data under the MOE are not comprehensive<sup>13</sup>. For this reason, Table 14 provides the education capital spending, both from the treasury and loans, under both the MOE and MOPIC. Table 14 shows that, in 2013, over 20 percent of capital spending in the education sector was channeled through MOPIC, the bulk of which was in the form of loans (Education Reform for the Knowledge Economy II – ERFKE II). Thus, loan-financed capital spending amounted to 17.9 percent of total education sector capital spending. As it turns out, MOPIC financed construction of 25 schools partially out of the treasury in addition to loans. In other words, the divide between MOE and MOPIC in terms of capital spending in the education sector is not a clean divide of treasury versus loan-financed spending. In addition, total capital spending on education (including MOE and MOPIC) amounts to only 5.7 percent of total spending on

<sup>13</sup> Another source of capital spending are USAID grants, which appear neither under treasury- nor loan-financed capital spending. Over the years, USAID support to the Jordanian education sector has been substantial (see Box 2) but remains off-budget.

education in 2013. By comparison, the OECD average is higher at 7.4 percent of total education spending on non-tertiary education<sup>14</sup>.

**Table 13: Total capital spending, by budget entity (2013)**

Budget entity	Capital expenditures (JD)			Percentage share		
	Treasury	Loans	Total	Treasury	Loans	Total
Ministry of Finance/HQ	190,396,091		190,396,091	19.15	0.00	18.65
Ministry of Public Works and Housing	163,082,002	-	163,082,002	16.41	0.00	15.97
Ministry of Local Affairs	89,451,936	3,808,496	93,260,432	9.00	14.12	9.13
Ministry of Water and Irrigation	88,415,738	-	88,415,738	8.89	0.00	8.66
Ministry of Health	83,145,375	-	83,145,375	8.36	0.00	8.14
Ministry of Planning & Int'l Cooperation	53,691,343	20,846,707	74,538,050	5.40	77.28	7.30
Royal Medical Services	45,650,000		45,650,000	4.59	0.00	4.47
Ministry of Education	38,599,038	-	38,599,038	3.88	0.00	3.78
Ministry of Transport	28,357,692		28,357,692	2.85	0.00	2.78
Ministry of Defense	28,000,000		28,000,000	2.82	0.00	2.74
Ministry of Interior/Civil Defense	20,800,000		20,800,000	2.09	0.00	2.04
Ministry of Higher Education and Scientific Research	19,190,267	-	19,190,267	1.93	0.00	1.88
Ministry of Water and Irrigation/Jordan Valley Authority	17,231,676	1,257,781	18,489,457	1.73	4.66	1.81
Ministry of Energy and Mineral Wealth	16,492,625	-	16,492,625	1.66	0.00	1.62
Ministry of Agriculture	13,310,153	621,489	13,931,642	1.34	2.30	1.36
Ministry of Interior/General Security	13,913,579		13,913,579	1.40	0.00	1.36
Ministry of Interior/Darak Forces	10,679,969		10,679,969	1.07	0.00	1.05
All other budget entities	73,649,341	441,823	74,091,164	7.41	1.64	7.26
<b>Total</b>	<b>994,056,825</b>	<b>26,976,296</b>	<b>1,021,033,121</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Ministry of Finance. June 2014. *General Budget Final Accounts for Fiscal Year 2013*, pages 466-7, 480

**Table 14: Education sector capital spending, by budget entity (2013)**

Budget entity	JDs		Percentage share	
	Treasury	Loans	Treasury	Loans
Ministry of Education	38,599,038		79.6	
Ministry of Planning & International Cooperation	1,224,243	8,654,043	2.5	17.9
- Basic education school buildings				
-- Construction of 25 schools	1,224,243	1,371,823	2.5	2.8
-- Education Reform for the Knowledge Economy II		7,282,220		15.0
<b>Sub-total</b>	<b>39,823,281</b>	<b>8,654,043</b>	<b>82.1</b>	<b>17.9</b>
<b>Total</b>		<b>48,477,324</b>		<b>100</b>

Source: Ministry of Finance. June 2014. *General Budget Final Accounts for Fiscal Year 2013*, pages 473, 302

### Box 2. USAID Support to the Education Sector in Jordan

Since the 1950s, USAID has built schools, donated libraries, and sent thousands of Jordanians to study in US universities, while others were trained in Jordan<sup>15</sup>. Between 2002 and 2014, USAID invested US\$458 million in the education sector. Recent achievements include construction and furnishing of 27 new schools; rehabilitation and expansion of 97 existing public schools; renovation of playgrounds and/or provision of sports kits at 100 schools; and training of 20,000 educators in induction, in-service, leadership, and mentorship programs.

<sup>14</sup> OECD 2014. *Education at a Glance 2014*. Indicator B6, Table B6.2. "Expenditure by educational institutions, by resource category and level of education (2011)".

<sup>15</sup> <https://www.usaid.gov/jordan/education>, accessed on June 13, 2016.

37. Table 15 shows the largest categories of spending, and they fall under 3 programs: early childhood education, basic education, and secondary education. Under all three programs, “additions to the learning environment” is a relatively large item of capital spending. “Additions to the learning environment” under basic education is indeed the largest item overall (17.3 percent of total MOE capital spending), followed by school feeding, ERFKE II, and school furnishings – all under basic education. As such, basic education captures fully 69 percent of total MOE capital spending, followed by a distant second – secondary education – at 16.8 percent.

**Table 15: Ministry of Education capital spending, by program (2013)**

MOE Program	Amount (JDs)	Percentage share
Early childhood education		
Additions to learning environment	1,931,896	5.0
Basic education		
Administration	1,305,632	3.4
Additions to learning environment	6,672,136	17.3
Building maintenance and repairs	2,383,682	6.2
School feeding	4,989,470	12.9
School furnishings	4,161,145	10.8
ERFKE II	4,953,508	12.8
Construct 60 schools	2,001,965	5.2
Secondary education		
Additions to learning environment	2,272,472	5.9
Building maintenance and repairs	1,196,994	3.1
All other -- including administration; vocational education; educational, social, & sports activities; special education; and illiteracy and adult education	6,730,138	17.4
Total	38,599,038	100

## B. Recurrent Spending

38. The Jordanian budgetary commitment to the education sector is further demonstrated by education’s share in total recurrent spending. Thus, the 2013 budget lists 56 separate budget entities, of which the Ministry of Education and the Ministry of Higher Education and Scientific Research are two. As Table 16 shows, the highest share of recurrent spending is by the Ministry of Finance (over 40 percent), followed by the Ministry of Defense and the Ministry of Education, at roughly 13 percent of total recurrent spending. The Ministry of Finance’s large share in recurrent spending can be explained by the fact that it includes debt interest payments (over 30 percent of Finance’s spending) and pension payments (over 40 percent of Finance’s spending). In effect then, the budgetary commitment to education in Jordan (on a recurrent basis) is substantial and equivalent to that of defense, with other ministries and budgetary entities lagging significantly behind.

39. Combining data on education current spending and numbers of enrolled students at the different levels of education, Table 17 presents the recurrent unit cost of education at each level. The table takes only recurrent cost into account as capital spending tends to be “lumpy” resulting in potentially wide fluctuations in the unit cost from year to year, or alternatively contested methodologies of amortization. Taking unit costs for a basic education student as the comparator in each year, it is clear that a child in

Kindergarten costs substantially less, and even a student at the secondary level expends fewer resources. The discrepancy between the basic education and Kindergarten education is to be expected, though arguably in Jordan it is relatively wide as Kindergarten pupils require a higher teacher-student ratio, thus increasing the unit cost. A lower unit cost for secondary students compared to basic students is, however, unexpected as secondary students require more specialized teaching and learning materials, for example. By way of comparison, the unit cost of a pre-primary pupil in the OECD is 10 percent lower than a primary student, and a secondary student is 10 percent higher<sup>16</sup>.

**Table 16: Total recurrent spending, by budget entity (2013)**

Budget entity	Current expenditures (JD)	Percentage share
Ministry of Finance/HQ	2,448,535,998	40.43
Ministry of Defense	834,000,000	13.77
Ministry of Education	803,890,217	13.27
Ministry of Interior/General Security	502,986,420	8.31
Ministry of Health	407,579,785	6.73
Ministry of Interior/Darak Forces	153,220,031	2.53
Ministry of Interior/Civil Defense	145,400,000	2.40
Royal Medical Services	143,100,000	2.36
Ministry of Social Development	106,910,096	1.77
Ministry of Higher Education and Scientific Research	63,919,313	1.06
All other budget entities	446,578,840	7.37
<b>Total</b>	<b>6,056,120,700</b>	<b>100.00</b>

Source: Ministry of Finance. June 2014. *General Budget Final Accounts for Fiscal Year 2013*, pages 209-10

**Table 17: Unit cost, current expenditure (current JDs)**

Level of education	2012	2013
Kindergarten	131	115
Basic	538	597
Secondary	484	477
Vocational	782	

Source: Ministry of Finance. June 2014. *General Budget Final Accounts for Fiscal Year 2013* and MOE EMIS

### C. Syrian Refugee Students

40. In recent years, the question of the unit cost of a basic student in particular has gained importance as the Jordanian education system struggled to absorb the influx of Syrian refugee children. It became necessary to estimate in some manner the additional financial cost incurred by the Jordanian public education system in order to accommodate the Syrian children, and the approach deemed most appropriate for some time relied on using the number of enrolled Syrian students and the unit cost of a student in the Jordanian system to estimate the total cost of Syrian enrollment. At the time, the MOE

<sup>16</sup> OECD 2014. *Education at a Glance 2014*. Indicator B1, Table B1.1a. "Annual expenditure per student by educational institutions for all services (2011)".

preferred to calculate the unit cost not only based on recurrent costs, however, factoring in instead estimates on depreciation of physical infrastructure as well as other costs, resulting in higher unit costs than those reported above. With time, the MOE became very concerned with erosion of certain service standards in the education sector in terms of class size and student-teacher ratio as a result of the Syrian refugee influx, taking these issues into account in estimating the financing needs for absorption of Syrian students into the Jordanian system.

41. Thus, the *Jordan Response Plan 2016-2018* estimates education sector needs by carrying out an education sector vulnerability assessment at the district level by using the three indicators of school size, class size, and student-teacher ratio. It defines the national standard for class size at 27, thereby identifying vulnerability to crowding in classes to be most severe in seven districts of the four governorates with high concentrations of Syrian refugees, i.e. Amman, Zarqa, Irbid, and Mafraq. The assessment further finds that 150 new schools would be needed to meet a national standard of 19 classes per school, which translates to a school size of 513 (assuming an average class size of 27). These schools would be located primarily in the same four governorates with highest concentrations of Syrian refugees. Finally, the assessment finds that an additional 8,600 teachers would be needed to meet a national standard of 17 students per teacher. In other words, the MOE is aiming to absorb the Syrian students while maintaining its current class size and student-teacher ratio, as described in Section I of this report. In addition, new schools to be constructed are to accommodate above 500 students, which is greater than the current average school size and in line with efficiency and quality gains outlined in Section I.

42. Beyond abiding by national standards on core education system indicators, the *Jordan Response Plan 2016-2018* aims to apply lessons learned from past refugee crises and enhance the Government's ability to respond to emergencies while at the same time strengthening the education system's resilience. This resilience implies that the education system is able to adapt and maintain quality in the face of potential new crisis scenarios. Rather than relying on the unit cost approach, the Plan proposes a number of projects that aim to improve access to quality and inclusive education for Syrian refugees and vulnerable Jordanians, boosting the capacity of the public education system with additional learning spaces, remedial/catch-up classes for those children who have missed out on weeks or months of schooling, and access to improved and diversified certified alternative learning opportunities for children and youth. Projects are also to deliver capacity building of teachers to safeguard the quality of education. The resulting three-year Plan starts with a baseline number of 156,663 Syrian children enrolled in education services (whether formal, non-formal, or informal), and targets increases in enrolment to 222,000 in 2016; 248,000 in 2017; and 272,800 in 2018. The increased enrolment is not expected to result from influx of additional Syrian refugees into Jordan, but rather from increased enrolment rates of Syrian children already in Jordan.

43. As Table 18 shows, a range of projects are proposed in the Plan, spanning improving the capacity of education authorities to ensure the continuous delivery of quality inclusive education services; enhancing access to safe and protective learning spaces; and increasing provision of adequate, protective, and safe learning spaces and facilities. In terms of associated costs, as Table 18 shows, over US\$850 million are estimated needs over the 2016-2018 period, with over US\$470 million dedicated to facilities, i.e. construction of 150 new schools and additional classrooms or renovation of 450 prioritized schools. The fact that attention is being paid not only to construction of new schools but also to adding classrooms to existing schools is warranted given the relatively small average school size in Jordan described in Section I. In other words, the Plan recognizes the necessity for a dual approach that is based on detailed analysis of the needs on the ground in specific locations in the country. The next largest project at over US\$180 million includes the hiring and pay of teachers – a topic to be discussed further in the next section.

44. The question arises why the *Jordan Response Plan 2016-2018* was able to stipulate construction of new schools that are larger than the average school in Jordan today, but did not choose to define standards for class size and STR that are higher than current levels in the country. This is likely the result of several factors, including the comparability of current class size and STR to OECD averages, but also the belief that these national standards contribute to quality of education and improved learning outcomes. As the final recommendations section will argue, it is not clear that maintaining these national standards on STR in particular will lead to improved learning outcomes in the absence of other measures related to accountability and performance monitoring of teachers.

**Table 18: Education financial requirements summary table, Jordan Response Plan 2016-2018**

Education	To ensure sustained quality educational services for children and youth impacted by the Syria crisis	2016	2017	2018	Total
		249,638,101	281,204,375	323,130,296	853,972,772
Sector Specific Objective 1	Improved capacity of education authorities to ensure the continuous delivery of quality inclusive education services	2,245,471	1,450,000	1,250,000	4,945,471
RES 1.1	To increase advocacy, resource planning and management capacity of MOE to absorb all children eligible for official education (formal, non-formal)	1,045,471	350,000	250,000	1,645,471
RES 1.2	To increase recognition of learning achievement and prior learning	100,000	100,000	-	200,000
RES 1.3	To expand higher education opportunities for vulnerable Jordanian and Syrian youth	1,100,000	1,000,000	1,000,000	3,100,000
Sector Specific Objective 2	Improved provision of education facilities sustains access to adequate, safe and protective learning spaces	8,955,140	7,461,115	8,607,596	25,023,851
RES 2.1	To provide all teachers with training to respond to education in emergencies and ensure quality education	5,631,899	4,138,800	5,095,600	14,866,299
RES 2.2	To provide a safe, violence-free and protective learning environment which promotes greater social cohesion in host communities	2,256,000	2,256,000	2,256,000	6,768,000
REF 2.1	To provide alternative education service providers with training to respond to education in emergencies and ensure quality education	670,741	791,815	918,996	2,381,552
REF 2.2	To provide a safe, violence-free and protective learning environment which promotes greater social cohesion in Camps	396,500	274,500	337,000	1,008,000

Sector Specific Objective 3	Increased provision of adequate, protective and safe learning spaces and facilities (access)	238,437,490	272,293,260	313,272,700	824,003,450
RES 3.1	Expand and increase access to early childhood development/ education for vulnerable children in public schools	1,038,760	1,038,760	1,038,760	3,116,280
RES 3.2	To increase and improve access to formal education facilities for children and youth	133,850,000	158,170,000	182,732,000	474,752,000
REF 3.1	Expand and increase access to early childhood development/ education in camps and double shifted schools	3,617,100	3,617,100	3,617,100	10,851,300
REF 3.2	To increase access to formal education (and Remedial Education) for refugees in both camps and host communities	45,452,000	56,125,400	79,618,840	181,196,240
REF 3.3	To expand access to alternative education opportunities, both certified and non-certified, for all out-of-school boys and girls	38,954,630	34,968,000	27,892,000	101,814,630
REF 3.4	Provide vulnerable youth with access to tertiary/ higher education opportunities	15,525,000	18,374,000	18,374,000	52,273,000

Source: Ministry of Planning and International Cooperation, Hashemite Kingdom of Jordan. 2016. *Jordan Response Plan for the Syria Crisis 2016-2018*, page 26.

## V. Teacher Compensation

Compensation captures a high share of recurrent spending in the education sector in Jordan, leaving few resources for non-wage inputs. The share of teachers in total education sector staff is 10 percentage points higher than the OECD average. The teacher pay scale and allowances in Jordan reward initial qualifications, seniority, and personal teacher attributes, as opposed to being an instrument for policy makers to incentivize better teaching performance or other desired education sector outcomes. Teachers in Jordan are relatively well-paid, based on comparisons with other tertiary-educated workers in the economy, relative to per capita GDP, and taking teaching time into account.

45. Teachers' salaries represent the largest single cost in formal education and have a direct impact on the attractiveness of the teaching profession. They influence decisions to enroll in teacher education, become a teacher after graduation (as graduates' career choices are associated with relative earnings in teaching and non-teaching occupations, and their likely growth over time), return to the teaching profession after a career interruption, and/or remain a teacher (as, in general, the higher the salaries, the fewer the people who choose to leave the profession)<sup>17</sup>. Since compensation and working conditions are important for attracting, developing, and retaining skilled and high-quality teachers, policy makers carefully consider teachers' salaries as they try to ensure both quality teaching and sustainable education budgets.

46. A closer look at recurrent spending under the Ministry of Education (see Table 19) shows that fully 92.3 percent of total recurrent spending was dedicated to worker compensation in 2013, with non-wage recurrent spending amounting to 7.7 percent. The non-wage recurrent spending includes spending on rent, utilities, maintenance, and cleaning – i.e. basic operations of educational institutions – as well as direct teaching inputs such as stationery, learning materials, and textbooks. By contrast, the 2011 OECD average share of compensation in total recurrent spending was 78.9 percent, leaving 21.1 percent for non-wage inputs<sup>18</sup>.

**Table 19: Ministry of Education recurrent spending, by program (2013)**

	Administration and support services	Vocational education	Educational, social, & physical activities	Special education	Early childhood education	Basic education	Secondary education	Eradicating illiteracy	Sub-total
Worker compensation	4.5	2.8	0.0	0.3	0.3	76.4	7.9	0.0	92.3
Salaries, wages, allowances	4.3	2.6	0.0	0.3	0.3	71.4	6.7	0.0	85.6
Social security contributions	0.2	0.2		0.0	0.0	5.0	1.2		6.6
Goods and services	0.6	0.1	0.1	0.1	0.0	1.8	3.2	0.0	5.8
Assistance			0.0						0.0
Assistance/stipends	0.0								0.0
Other	1.6			0.0		0.3	0.0		1.9
Sub-total	6.7	2.9	0.1	0.4	0.3	78.4	11.1	0.1	100.0

Source: Ministry of Finance. June 2014. *General Budget Final Accounts for Fiscal Year 2013*, pages 158-174

47. Looking at the breakdown of worker compensations (see Table 20), overall – across all levels of education – additional allowances constitute the largest share at 36.6 percent, followed by wages of non-classified employees (26.8 percent), and the cost of living personal allowance (24.1 percent). However, since employees' wages appear divided into three categories – classified, non-classified, and contract employees – arguably they should count together and so constitute 36.2 percent of total compensation. The additional allowance reflects the decision to double the base salary of all education sector employees,

<sup>17</sup> OECD 2014. *Education at a Glance 2014*.

<sup>18</sup> OECD 2014. *Education at a Glance 2014*. Indicator B6, Table B6.2. "Expenditure by educational institutions, by resource category and level of education (2011)".

beginning in 2013. In effect, since it is an automatic doubling, it is no longer an allowance but constitutes part of the base salary. The largest allowance is therefore the cost of living personal allowance.

**Table 20: Ministry of Education worker compensation, by program (2013)**

	Administration and support services	Vocational education	Educational, social, & physical activities	Special education	Early childhood education	Basic education	Secondary education	Eradicating illiteracy	Total
Worker compensation									
Salaries, wages, allowances									
Classified employees	17.4	12.7			6.8	8.4	13.8		9.3
Non-classified employees	16.0	23.8		35.0	29.6	27.7	25.1		26.8
Contract employees	1.2								0.1
Cost of living personal allowance	18.0	22.1		25.5	27.1	24.7	22.3		24.1
Cost of living family allowance	2.1	1.7		0.7	0.1	1.3	1.5		1.4
Additional work allowance	0.7	0.8	55.0			1.0	3.7		1.2
Additional allowance	36.4	38.9		37.2	36.4	36.8	33.6		36.6
Other allowances	1.5								0.1
Transportation allowance	4.2								0.2
Transfer compensation	1.0								0.1
Field allowance	0.6								0.0
Employee bonus	0.9	0.0	45.0	1.6		0.0	0.0	100.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ministry of Finance. June 2014. *General Budget Final Accounts for Fiscal Year 2013*, pages 158-174

48. Worker compensation includes spending on teachers as well as non-teachers in the education sector. Countries demonstrate significant differences in distribution of education staff between teaching and other categories, reflecting differences among countries in the organization and management of schooling. These differences reflect the numbers of staff that countries employ in non-teaching capacities, e.g. principals without teaching responsibilities, guidance counsellors, school nurses, librarians, researchers without teaching responsibilities, bus drivers, janitors and maintenance workers, and administrative and management personnel both inside and outside the school. The OECD classifies education sector staff into two broad categories. The first are instructional personnel, i.e. classroom teachers, special-education teachers, teaching assistants, and teachers' aides. The second category are non-instructional personnel, i.e. school and higher-level management (e.g. principals, superintendents of schools, and commissioners of education); school and higher-level administrative personnel (e.g. bookkeepers and clerks, network administrators); professional support for students (e.g. guidance counsellors, librarians, nurses, and psychologists); maintenance and operations personnel (e.g. maintenance staff, plumbers, grounds staff, and food servers)<sup>19</sup>. According to this classification, 69 percent of total staff were instructional personnel in OECD countries on average in 2010 (in primary and secondary education); 12 percent were involved in management and administration; another 10 percent in maintenance and operations; and fully 9 percent in professional support for students<sup>20</sup>.

49. Table 21 shows the distribution of instructional and non-instructional staff in Jordan, i.e. MOE staff (i.e. employees of the Central Ministry in Amman as well as those distributed across the Education Directorates in the governorates); school principals and assistant principals; education supervisors and counselors; laboratory and computer technicians; school administrators; and teachers. Thus, the Ministry in Amman employs a total of 1,002 staff, and overall MOE staff are 5.1 percent of total education sector staff. Principals and assistant principals make up another 5.3 percent of education sector staff, education supervisors and counselors 3.2 percent, and technicians and school administration another 6.5 percent, for a total of 20 percent for non-instructional staff, so that teachers are 80 percent of total education sector staff. The share of teachers in total education sector staff is therefore roughly 10 percentage points higher than the respective OECD average, and this discrepancy is mostly the result of the seeming absence

<sup>19</sup> OECD 2012. *Education at a Glance 2012*. "The Learning Environment and Organisation of Schools," pages 447-8.

<sup>20</sup> OECD 2012. *Education at a Glance 2012*. Indicator D2, Table D2.4a. "Teaching staff and non-teaching staff employed in primary, secondary, and post-secondary non-tertiary education institutions (2010)," page 453.

of the category of professional support for students that constitutes 9 percent of OECD education sector staff.

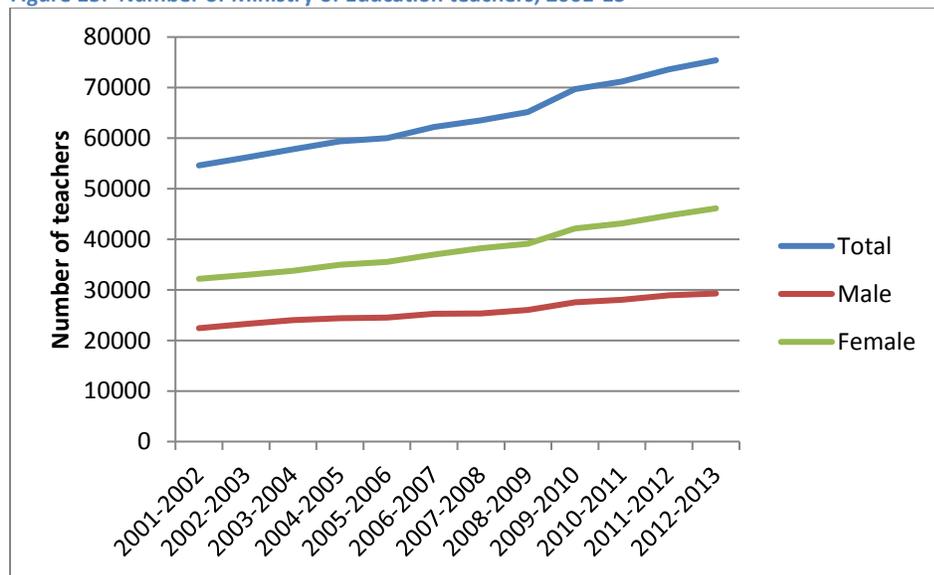
**Table 21: Education sector staff, 2015**

	MOE administration	Principals	Assistant principals	Education supervisors	Education counselors	Lab/computer technician	School administration	Teachers	Total
Central Ministry	976			26					1,002
Amman	909	632	643	267	495	804	695	18,326	22,771
Balqa	352	204	144	79	146	225	242	5,062	6,454
Zarqa	333	272	138	104	211	387	309	8,605	10,359
Irbid	685	545	331	201	388	724	527	14,840	18,241
Maan	261	155	40	46	58	79	103	3,070	3,812
Karak	367	260	109	92	157	218	314	5,482	6,999
Jarash	103	157	67	33	73	112	110	3,017	3,672
Ajloun	90	101	58	24	67	123	85	2,469	3,017
Mafrq	261	400	228	73	167	212	190	7,342	8,873
Aqaba	104	52	49	18	49	78	73	1,643	2,066
Madaba	167	119	80	34	60	103	113	2,563	3,239
Tafilah	144	109	61	30	65	110	96	2,351	2,966
Total	4,752	3,006	1,948	1,027	1,936	3,175	2,857	74,770	93,471
Share of total (%)	5.1	3.2	2.1	1.1	2.1	3.4	3.1	80.0	100.0

Source: MOE Human Resource Department

50. The number of teachers has grown consistently over the last decade, so that MOE teachers amounted to a total of 54,609 in academic year 2001-02 (of whom 32,184 were female and 22,425 male) and reached 75,401 in 2012-13 (46,120 female and 29,281 male). This translates to an average annual growth rate of 3 percent over the period 2001-13. However, the number of female teachers grew at a faster rate than male teachers, so that the average annual growth rate for female teachers was 3.3 percent compared to 2.5 percent for male teachers.

**Figure 15: Number of Ministry of Education teachers, 2001-13**



Source: EMIS, MOE

## A. Teachers Are Paid According to Qualification and Seniority

51. Public education employees fall into three categories, depending on whether they hold a BA (Category 1), a diploma (Category 2), or are technical support staff, e.g. drivers (Category 3). Focusing on Categories 1 and 2, under which teachers would fall, the salary progression takes place both in terms of steps within the same category (seven steps in Category 1 and nine steps in Category 2) as well as by years of service (up to a maximum of fifteen years at the highest step in each of the categories). As a result, the lowest base monthly pay for an entry level Category 1 employee (Step 7) is 150 JD, while the highest pay for a Category 1 employee (Special) with 15 years of service is 593 JD, meaning almost four times as much pay. Similarly, an entry level Category 2 employee (Step 9) earns 125 JD per month, compared to a Category 2 Step 1 employee with 15 years of service who earns 353 JD, i.e. almost three times as much (see Table 22). In many countries, and in most OECD countries, teachers' salaries increase with the level of education taught<sup>21</sup>. This is not the case in Jordan. Instead, the initial qualification (BA or diploma) determines the starting salary.

**Table 22: Education sector staff basic salary scale, 2012 (JD/month)**

Category	Level	Grade	Years at grade level														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
One	First	Special	425	437	449	461	473	485	497	509	521	533	545	557	569	581	593
		1	302	312	322	332	342	352	362	372	382	392					
		2	260	268	276	284	292										
	Second	3	228	234	240	246	252										
		4	202	207	212	217	222										
		5	181	185	189	193	197										
	Third	6	165	168	171	174	177										
7		150	153	156	159	162											
Two	First	1	269	275	281	287	293	299	305	311	317	323	329	335	341	347	353
		2	243	248	253	258	263										
		3	218	223	228	233	238										
	Second	4	197	201	205	209	213										
		5	177	181	185	189	193										
		6	161	164	167	170	173										
	Third	7	146	149	152	155	158										
		8	135	137	139	141	143										
		9	125	127	129	131	133										
Three		120	123	126	129	132	135	138	141	144	147	150	153	156	159	162	

Source: MOE Human Resources Department

52. In all school systems, teachers' salaries rise during the course of a career, although the rate of change differs greatly. Since Jordan participated in the 2012 PISA, it is possible to compare its salary scale with other participating countries. Thus, Jordan is among the countries where salaries at the top of the scale are considerably higher than starting salaries – on average for this group, which includes Korea, Shanghai-China, Malaysia, Singapore, Romania, and Jordan, salaries at the top of the scale are 2.5 times higher than starting salaries and it takes between 20 and 40 years to reach the top salary<sup>22</sup>. By contrast, in Denmark, Iceland, Norway, Slovenia, Sweden, Finland, Germany, the Slovak Republic, the Czech Republic, Spain, Peru, Montenegro, and Croatia, teachers' salaries at the top of the scale are at most 1.4 times higher than starting salaries. Jordan's approach to teacher compensation therefore encourages longevity in the sector, since rewards with seniority are substantial. Of course, weak financial incentives

<sup>21</sup> OECD. 2014. *Education at a Glance 2014*, page 456.

<sup>22</sup> OECD. 2013. *PISA 2012 Results: What Makes Schools Successful? Resources, Policies and Practices (Volume IV)*, Programme for International Student Assessment, OECD Publishing, page 95.

make it more difficult to retain teachers as teachers approach the peak of their earnings. On the other hand, there may be benefits to compressed pay scales, e.g. it is often argued that organizations with smaller differences in salaries among employees enjoy more trust, freer flows of information, and more collegiality among co-workers. In Jordan in particular, the pervasive feeling of teachers that they are under-paid might be related to the decompressed pay scale.

53. In fact, teacher salaries are one component of teachers' total compensation. Other benefits, such as regional allowances for teaching in remote areas, family allowances, reduced rates on public transport, and tax allowances on the purchase of cultural materials, form part of teachers' total remuneration in parts of the world. In Jordan, a teaching allowance was put in place in 2013 that doubled the base salary for all staff – a reform unique to education sector employees in the Kingdom. The cost of living allowance (see Table 23) is also an allowance allocated to all staff without preconditions. Other allowances depend on the particular circumstances of the individual, e.g. whether they are married or single; teaching in a remote area; or had to relocate from their home district to another district, governorate, or even region of Jordan.

**Table 23: Allowances for education sector staff, 2013**

Type of Allowance	Amount	Notes
Teaching allowance	100% of base salary	Allocated across the board to all staff since January 1, 2013
Cost of living allowance	135 JD/month	Allocated across the board to all staff
Family allowance	10-20 JD/month	20 JD if married
Location allowance	10-30 JD/month	Higher for remote areas
Relocation allowance	50-150 JD/month	50, 100, or 150 JD/month for relocation to another district, governorate, or region, respectively
Rank allowance	6-32% of base salary	e.g. 16% for expert teacher, 15% for MOE Department Head, 25% for school principal

54. From the expenditure data reported earlier (Table 20 in particular) and summarized in Table 24, wages (including for classified, non-classified, and contract employees) constitute 36.2 percent of total education staff remuneration, so-called additional allowance another 36.6 percent, cost of living allowance 24.1 percent, and next in size in terms of share of total is the family allowance at 1.4 percent of total, with all other allowances representing 1 percent or less of the total. This approach to allowances blunts their usefulness in terms of achieving certain desired results, such as location of teachers in certain areas, or teaching of certain subjects, or motivating certain behaviors of teachers. For example, additional payments in OECD countries are most often awarded for particular responsibilities or working conditions, such as teaching in more disadvantaged schools, particularly those located in very poor neighborhoods or those with a large proportion of students whose language is not the language of instruction. These schools often have difficulties attracting teachers and are more likely to have less-experienced teachers. In addition, half of OECD countries provide additional payments for special activities, e.g. sports and drama clubs, and teaching students with special needs in regular schools<sup>23</sup>.

**Table 24: Main components of education sector staff compensation, 2013**

Education staff remuneration	Share of total (%)
Wages	36.2
Additional allowance	36.6
Cost of living allowance	24.1
Family allowance	1.4

Source: Ministry of Finance. June 2014. *General Budget Final Accounts for Fiscal Year 2013*, pages 158-174

<sup>23</sup> OECD. 2014. *Education at a Glance 2014*, page 462.

55. Additional payments based on teachers' qualifications, training, and performance are also common in OECD countries. In other words, while Jordan uses teachers' qualifications to distinguish between the base salary for those with a diploma versus a BA, OECD countries tend to use an allowance to reward an initial education qualification that is higher than the minimum requirement. In this manner, the initial qualification is rewarded but its importance in teacher total pay recedes with time as the growth potential for all teachers is the same. Moreover, among the OECD countries, 21 countries offer an additional payment to teachers for outstanding performance, and in 17 of those countries, the decision to award the additional payments is made by the school principal (OECD 2014). This type of performance-based pay will be discussed further in the next section.

## B. Teachers Are Relatively Well-paid

56. Given the above-described salary scale and the automaticity of the doubling of the base salary and the cost of living allowance, the lowest starting compensation for a teacher is for a single teacher with a diploma who is not relocating from home and amounts to 405 JD/month (2xbase salary of 125 JD + 135 JD cost of living allowance + 10 JD family allowance + 10 JD location allowance). If the starting teacher has a BA, then the lowest compensation amounts 455 JD/month. Annually, this translates to 4,860 JD or 5,460 JD for starting teachers with diploma or BA, respectively.

57. One comparison that is often employed to assess relative attractiveness of teacher pay is between teacher salaries and the earnings of tertiary-educated workers in the economy. Ideally, teachers' salaries here either refers to actual salary, including bonuses and allowances, for teachers aged 25-64 or to statutory salary after 15 years of experience and minimum training. The comparison is made then relative to full-time, full-year workers with tertiary education. For the OECD countries, teachers in pre-primary, primary, lower secondary, and upper secondary education earned on average 0.80, 0.85, 0.88, and 0.92 times the amount earned by full-time, full-year workers with tertiary education<sup>24</sup>. The country with the highest relative teacher pay was Korea, where pre-primary teachers earned 1.32 times the earning of other tertiary-educated workers in the economy, and all other teachers earned 1.36 times as much.

58. In the case of Jordan, using data from the Jordan Employment and Unemployment Survey and Household Income and Expenditure Survey, Assaad et al. (2014) provide first-job wages for individuals between the ages of 25 and 40 in 2012 who graduated in either commerce/business or information technology (IT) from a four-year higher education institution and live in urban areas. The average monthly wage is found to be JD 342, rising to JD 561 five years later (where the individual did not go on to further higher education). This translates to JD 4,104 in 2012 JDs, or JD 4,334 in 2013<sup>25</sup>. By comparison, a starting teacher with BA earned 5,460 JD, or 1.26 times the earnings of a commerce or IT graduate working in the private sector. While the comparison is not completely parallel with the OECD comparison described above, it does provide an indication that teachers are relatively well-paid in Jordan.

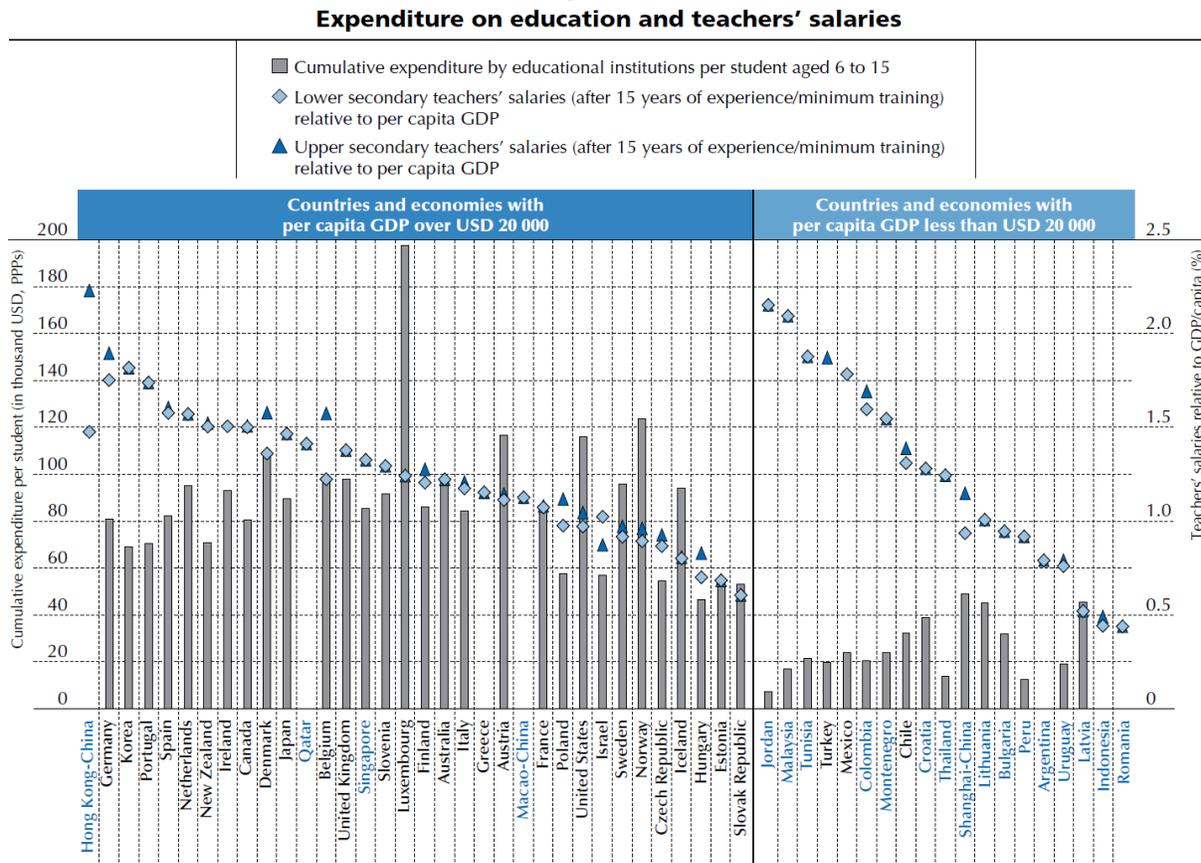
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<sup>24</sup> OECD. 2014. *Education at a Glance 2014: OECD Indicators*, Table D3.2. "Teachers' salaries relative to earnings for full-time, full-year workers with tertiary education (2012)", page 469.

<sup>25</sup> 2013 inflation rate of 5.6 percent, source Department of Statistics accessed on at [http://www.dos.gov.jo/dos\\_home\\_a/jorfig/2013/1.pdf](http://www.dos.gov.jo/dos_home_a/jorfig/2013/1.pdf)

59. Another method used often to assess whether teacher pay is adequate or not is to compare teacher pay to a country's per capita GDP. Thus, per capita GDP in Jordan in 2013 was 3,653 JD<sup>26</sup>, while the minimum starting salary for a teacher was 4,860 JD (see above), i.e. 1.3 times the per capita GDP. However, this comparison is more typically done not for starting teachers but for teachers with 15 years of experience and minimum training – separately for lower secondary and upper secondary education. Using the 2012 PISA findings, the OECD average for lower and upper secondary is 1.24 and 1.29, respectively. For Jordan, the ratio is the same for both levels of education and stands at 2.15 – the highest ratio amongst all countries participating in PISA in 2012 (see Figure 16). In other words, a teacher with 15 years of experience in Jordan is earning more than twice the per capita GDP according to PISA data.

Figure 16: Teacher salaries relative to per capita GDP, 2012



Source: OECD. 2014. *PISA 2012 Results: What Students Know and Can Do – Student Performance in Mathematics, Reading, and Science (Volume I)*, Revised Edition, page 96.

60. The above analysis of teacher salaries has focused on statutory pay using available data on the pay scale. However, actual average teacher pay in Jordan may well be quite different, as the average teacher may not have 15 years of experience and possess minimum qualifications. Table 25 provides data on total salaries and allowances at the governorate level. The wage data are not available by type of education sector employee, i.e. whether they are teachers, principals, supervisors, etc. If there are significant differences across governorates in the breakdown across the different types of education sector employees, then taking a simple average will make the comparison across governorates very

<sup>26</sup> Ministry of Finance. July 2014. *General Government Finance Bulletin*, Studies and Economic Policies Directorate, Volume 16, Number 6, page 10.

tenuous. But as Table 26 shows, while there is some variation across governorates in terms of the share of different types of education sector staff in total staff in the governorate, the variation is not great. Therefore, 6,800 JD probably represents a good estimate of the average pay for education sector staff in Jordan in 2015 – although not for teachers specifically. Therefore, given that Jordan’s per capita GDP was 3,811 JD in 2014<sup>27</sup>, average education sector pay equals 1.78 of per capita GDP, i.e. relatively high, but not as high as the ratio reported in comparison to other PISA countries. This, in turn, indicates that the average education sector staff in Jordan has fewer than 15 years of experience on the job, a fact confirmed by Figure 17 from the 2010 SABER report on teachers.

**Table 25: Average education sector staff pay, by governorate (2015)**

Governorate	Total governorate wages and allowances	Total staff	Average wage
Amman (incl. MOE)	162,220,932	23,774	6,823
Balqa	43,917,540	6,453	6,806
Zarqa	69,781,632	10,359	6,736
Madaba	21,924,624	3,239	6,769
Irbid	127,378,668	18,241	6,983
Mafraq	58,181,928	8,873	6,557
Jarash	25,154,568	3,672	6,850
Ajloun	20,585,724	3,017	6,823
Karak	47,644,260	6,999	6,807
Tafilah	19,880,508	2,966	6,703
Maan	24,860,952	3,812	6,522
Aqaba	13,679,316	2,066	6,621
Total	635,210,652	93,471	6,796

Source: MOE Human Resource Department

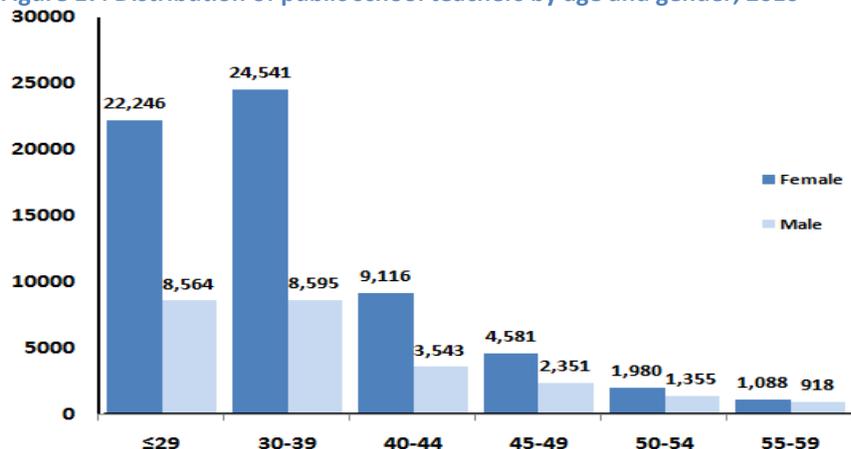
**Table 26: Share of different education sector staff, by governorate (2015)**

	MOE administration	Principals	Assistant principals	Education supervisors	Education counselors	Lab/computer technician	School administration	Teachers	Total
Central Ministry	97.4			2.6					100.0
Amman	4.0	2.8	2.8	1.2	2.2	3.5	3.1	80.5	100.0
Balqa	5.5	3.2	2.2	1.2	2.3	3.5	3.7	78.4	100.0
Zarqa	3.2	2.6	1.3	1.0	2.0	3.7	3.0	83.1	100.0
Irbid	3.8	3.0	1.8	1.1	2.1	4.0	2.9	81.4	100.0
Maan	6.8	4.1	1.0	1.2	1.5	2.1	2.7	80.5	100.0
Karak	5.2	3.7	1.6	1.3	2.2	3.1	4.5	78.3	100.0
Jarash	2.8	4.3	1.8	0.9	2.0	3.1	3.0	82.2	100.0
Ajloun	3.0	3.3	1.9	0.8	2.2	4.1	2.8	81.8	100.0
Mafraq	2.9	4.5	2.6	0.8	1.9	2.4	2.1	82.7	100.0
Aqaba	5.0	2.5	2.4	0.9	2.4	3.8	3.5	79.5	100.0
Madaba	5.2	3.7	2.5	1.0	1.9	3.2	3.5	79.1	100.0
Tafilah	4.9	3.7	2.1	1.0	2.2	3.7	3.2	79.3	100.0
Share of total	5.1	3.2	2.1	1.1	2.1	3.4	3.1	80.0	100.0

Source: MOE Human Resource Department

<sup>27</sup> Ministry of Finance. January 2016. *General Government Finance Bulletin*, Studies and Economic Policies Directorate, Volume 17, Number 12, page 18.

Figure 17: Distribution of public school teachers by age and gender, 2010



Source: World Bank. 2010. *Jordan Teachers SABER Country Report*, Figure 4, page 3.

61. Yet another angle to assessing teacher pay in Jordan is the following: in addition to class size, student-teacher ratio, and teachers' salaries, the number of hours of student instruction and the amount of time teachers spend teaching also affect the financial resources countries need to allocate to education. In Jordan, students spend on average 6 hours per day, 5 days a week in school – adding up to 30 hours of instruction per week. For teachers, the average workload is 24 lessons a week, although there is some variation: for basic education, teachers' workload is 24-26 lessons a week, each lesson 45 minutes long; and for secondary, the weekly workload is 18-20 lessons, each 55 minutes long. The relationship between class size, student-teacher ratio, student instruction time, and teaching time can be described as:

$$\text{Class size} = \text{student-teacher ratio} \times \text{student instruction time} / \text{teaching time per teacher}$$

Using available data (see Table 7) on average class size and student-teacher ratio, this relationship holds for Jordan using the average student instruction time of 30 hours per week and teaching time per teacher of 18 hours per week (24 lessons each 45 minutes long).

62. Given that the school year in Jordan consists of 195 days (slightly above the OECD average of 180-183 depending on the level of education), the annual teaching workload is provided in Table 27 for basic and secondary levels of education, using the different weekly teaching workloads (and keeping in mind that lessons in basic education are 45 minutes long, whereas they are 55 minutes long in secondary education). As Table 27 shows, annual teaching hours are roughly comparable with averages observed in OECD countries<sup>28</sup>. In other words, teachers in Jordan are not teaching above average annual hours so that above average pay is warranted.

63. In most countries, teachers are formally required to work a specified number of hours per week, including teaching and non-teaching time, to earn their full-time salary. Some countries also regulate the time that a teacher has to be present in the school. In fact, more than half of OECD countries specify the time during which teachers are required to be available at school, for both teaching and non-teaching activities, at one or various levels of education. Although teaching time is a substantial component of teachers' workloads, assessing students, preparing lessons, correcting students' work, in-service training and staff meetings should also be taken into account when analyzing the demands placed on teachers in

<sup>28</sup> OECD. 2014. *Education at a Glance 2014*, page 474.

different countries. The amount of time available for these non-teaching activities varies across countries, and a large proportion of statutory working time spent teaching may indicate that less time is devoted to activities such as assessing students and preparing lessons.

**Table 27: Teaching hours per year**

Level of education	Jordan teaching workload		OECD average
	Weekly	Annual	Annual
Basic	26	761	782 (primary)
	24	702	694 (lower secondary)
Secondary	20	715	655 (upper secondary)
	18	644	655 (upper secondary)

Source: World Bank SABER 2010; Ministry of Education; OECD 2014 page 474

64. In Jordan, the Ministry of Education has outlined teachers' duties as: teaching, grading assignments, supervising students, integrating difficult students, mentoring fellow staff members, standing in for absent teachers, carrying out administrative functions, collaborating on the school plan, and taking part in the internal school evaluation. The Ministry of Education further determines teachers' working time, stipulating that teachers spend the school day on the school premises. Since the school year consists of 195 days with 6 hours of school per day, this amounts to 1,170 hours of teacher working time annually. While such a definition is more favorable than limiting working time only to hours spent directly in the classroom, it does not go far enough in recognizing that lesson planning and grading may take place outside of official school hours. Nonetheless, the resulting teacher working time required at school in Jordan is almost identical to the OECD average for lower secondary (1,173 hours), below the OECD average for primary (1,200 hours) and above the OECD average for upper secondary (1,142 hours). Therefore again, teachers in Jordan are working average numbers of hours annually and receiving relatively high pay.

## VI. Recommendations

65. As described in this report, the Jordanian government's commitment to education is apparent in the amount of resources it has dedicated to education over the years. These investments have led to a system that has made great strides in terms of schooling access and attainment. At the same time, education policy makers are aware that quality of education remains below international standards. In order to improve quality, basic system attributes such as school size, class size, and student-teacher ratios have been an important concern for policy makers – particularly in the current context of influx of Syrian refugee students into the system. In addition, policy makers have sought to address the need for better teaching by implementing an across-the-board doubling of teacher base salaries.

66. Arguably, these measures do not tackle sufficiently the shortcomings that the Jordanian education system is exhibiting today. One set of important issues revolves around paying teachers in a manner that incentivizes better performance on their part, leading to better teaching and learning, as well as matching their performance better with students' needs. Another set of issues concerns capital investments in the education sector, and the need to tackle the small school size, rented schools, as well as localized overcrowding. And a third set of issues revolves around the persistent regional differences that are observed – whether in terms of access or learning outcome indicators.

### A. Motivating Teachers to Perform

67. Teacher quality is the key driver in achieving student learning<sup>29</sup>. It is true that students' family background (parent education, socioeconomic status, and conditions at home such as access to books) is the strongest predictor of students' learning outcomes. But in terms of schooling inputs, the single most critical factor is teacher quality. Research in the United States on the "value added" of individual teachers over the course of a single school year has shown that students with a weak teacher may master 50 percent or less of the grade curriculum; students with a good teacher get an average gain of one year; and students with great teachers advance 1.5 grade levels or more<sup>30</sup>. Beyond technical knowledge, teacher quality requires adequate levels of effort to be exerted to meet professional standards. Yet, at times, absent monitoring and incentive mechanisms, teachers may exert suboptimal levels of effort, thereby undermining the quality of education service delivery<sup>31</sup>.

68. In terms of motivating teachers to perform, incentives may be classified into three broad categories: (a) professional rewards, e.g. recognition and prestige; (b) accountability pressure; and (c) financial incentives<sup>32</sup>. Cross-country studies suggest that no education system achieves high teacher quality without aligning all three types of incentives. Given the nature of this report, the discussion here is focused on financial incentives. Across-the-board salary increases – as was recently implemented in Jordan – are inefficient: for the same fiscal expenditure, school systems can achieve higher quality by

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<sup>29</sup> Bruns, Barbara and Javier Luque. 2014. *Great Teachers: How to Raise Student Learning in Latin America and the Caribbean*. World Bank.

<sup>30</sup> Bruns, Barbara and Javier Luque. 2014. *Great Teachers: How to Raise Student Learning in Latin America and the Caribbean*. World Bank.

<sup>31</sup> World Bank. 2015. *Accountability: The Last Mile on the Route to Quality Service Delivery – Evidence from Jordanian Schools & Primary Health Centers*.

<sup>32</sup> Bruns, Barbara and Javier Luque. 2014. *Great Teachers: How to Raise Student Learning in Latin America and the Caribbean*. World Bank.

raising average salaries through a pay scale differentiated by performance. This avoids overcompensating weak performers, can keep overall pension liabilities lower, and creates stronger incentives for the most talented individuals.

69. A recent World Bank study<sup>33</sup> finds that teachers' effort to meet professional standards in Jordan is seemingly low. The study focuses on four measures of teacher effort that it derives from the Jordanian teacher professional standards as defined by the Civil Service Bureau. According to these standards, teachers are required to (i) provide continuous feedback to students; (ii) reply to students' questions in a manner that supports their learning; (iii) provide varied forms of student assessment; and (iv) take into account students' performance and needs in lesson design. The study reports that only 20 percent of teachers in the early grades provide continuous feedback in their students' copybooks, while roughly 25 percent mark only a few pages, and 3.4 percent do not mark a single page. Most teachers' reaction to a student who is unable to answer a question is to simply repeat the question to the same student, and 5.4 percent of teachers even punish the student for being unable to provide the answer. Almost two-thirds of teachers rely on a limited number of student assessment methods and only a quarter of teachers make use of the assessments for lesson plans.

70. In other words, though the teacher professional standards exist in Jordan, teachers in effect have very little incentive to abide by these standards and are not held accountable to them. As described earlier in this report, the teacher salary pay scale is based on initial credentials and seniority, with no financial incentives for performance. At the school level, principals are not empowered to manage teachers for performance – they do not have the authority to hire and fire staff -- nor do they have the budget to provide additional pay. On the other hand, the study finds that principals in Jordan seldom rely on non-financial incentives to encourage teachers to perform, instead making use of mechanisms to sanction, if at all<sup>34</sup>.

71. Therefore, it is arguably the case that Jordan has achieved an acceptable threshold in terms of “hard” structural inputs for its education system, but remains behind on the necessary “soft” accountability and incentive measures that will maximize the benefits out of the structural inputs (see Box 3 for recent innovations in accountability in the education sector in Jordan). There is therefore a need for a shift towards performance-based education, whereby teacher accountability is at the heart of the sector reform agenda. Moving toward such a performance-based accountability system requires<sup>35</sup>: (i) selection of adequate indicators to measure provider performance; (ii) collection of the relevant standardized data for these performance indicators; and (iii) design of effective rewards and sanction schemes against these performance indicators. This in turn would mean that performance indicators would inform the design of professional development programs, so that the teacher hiring and deployment system is re-oriented towards enhancing teacher performance.

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<sup>33</sup> World Bank. 2015. *Accountability: The Last Mile on the Route to Quality Service Delivery – Evidence from Jordanian Schools & Primary Health Centers.*

<sup>34</sup> World Bank. 2015. *Accountability: The Last Mile on the Route to Quality Service Delivery – Evidence from Jordanian Schools & Primary Health Centers.*

<sup>35</sup> World Bank. 2015. *Accountability: The Last Mile on the Route to Quality Service Delivery – Evidence from Jordanian Schools & Primary Health Centers.*

### **Box 3. Strengthening Accountability in Jordan's Education System**

The World Bank is supporting the Jordanian Ministry of Education in strengthening the governance of the education sector through the establishment of an accountability system that incentivizes stakeholders in the system to improve education quality in public schools. The accountability process works in the following manner: Schools undergo a process of self-evaluation and are also assessed against a holistic quality framework that is underpinned by the four critical domains of teaching and learning; student environment; community relationships; and leadership and management. The external assessment is conducted by a highly trained team of professional assessors, and the results are made public in the form of a school report. Schools and field directors are held accountable for addressing weaknesses identified in the assessments, and the community is made aware of their school's strengths and weaknesses. This public and professional accountability is expected to improve learning and education quality.

The ongoing project has achieved major milestones to date, including 1) passing of legislation ensuring that the Education Quality and Accountability Unit is institutionalized in the education system; 2) training and formal appointment of 20 assessors to the Unit (target is 80); and 3) development of technical materials necessary for the operation of the Unit. The process of school assessment and follow-up is in the pilot phase, with plans for national scale-up in 2017-2018. All schools in Jordan will be subject to external assessment, and all schools will be held to the same high standards.

72. The institutionalization of mechanisms to motivate high teacher performance is therefore an area that needs to take center stage in the teacher reform agenda in Jordan. In a positive step in this direction, Jordan has introduced a teacher appraisal system which requires teachers to take part in annual performance evaluations that include assessments from their school principals and Education Directorate supervisors. These appraisals are intended to inform decisions on promotions and raises on the salary scale at the central level. Yet, anecdotal evidence suggests that the existing teacher appraisal system does not effectively distinguish among high and low performing teachers and is unable to link career opportunities and compensation to teachers' performance. The above-mentioned World Bank study<sup>36</sup> conducted a number of case studies in Jordanian schools and concluded that across all visited schools, there is a prevalent belief by teachers that they will receive an automatic promotion and salary increase after four to six years, regardless of their performance. One potential driver behind this belief is that criteria to assess teacher performance tend to center on issues pertaining to teacher attendance, timeliness, and perfunctory reviews of lesson plans, while often overlooking teacher pedagogical practices, content knowledge, and student learning outcomes. According to these authors, these rather administrative indicators are insufficient measures to effectively distinguish among high and low performing teachers, resulting in most teachers being graded as "excellent" in their annual performance evaluations. Thus, providing any type of incentive mechanism at the central level becomes increasingly difficult in a national pool where all or most teachers are ranked as excellent.

73. Strengthening the ability of the teacher performance evaluation system to better capture measures of teacher performance that lead to improved student learning should be a priority area for education reform. The case of Ontario's Teacher Performance Appraisal (TPA) system may provide important insights in this regard. The TPA includes systematic steps that principals and teachers need to follow. First, a pre-observation meeting is held between the principal and the teacher to discuss how the teacher's performance will be assessed, including a review of the competencies that will form the basis of the teacher's performance appraisal. Second, the principal conducts one or more classroom observations

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<sup>36</sup> World Bank. 2015. *Accountability: The Last Mile on the Route to Quality Service Delivery – Evidence from Jordanian Schools & Primary Health Centers.*

to assess teachers' skills, knowledge and attitudes in her classroom. Third, a post-observation meeting is held to review the results of the classroom observation and identify specific areas for training and development. Finally, a summative report is produced by principals to document each teachers' appraisal. The report includes a record of meetings and classroom observation dates, the principal's comments regarding the teacher's competencies, the principal's overall rating of the teacher's performance, and recommended professional growth goals and strategies for the teacher to pursue. The principal must also collect evidence of the teachers' performance and attach it to the summative report. Whereas new teachers are given a "development needed" or "satisfactory" score, experienced teachers are rated as either "satisfactory" or "unsatisfactory". A "development needed" or "unsatisfactory" rating requires that an improvement plan be developed identifying very specific areas in which the teacher must improve. Where steps have been taken to provide support to a teacher, but a teacher's performance is still rated as "unsatisfactory", the principal recommends the termination of the teacher's employment<sup>37</sup>.

74. UNRWA provides an example closer to home<sup>38</sup>. UNRWA operates one of the largest non-governmental school systems in the Middle East. It manages nearly 700 schools, hires 17,000 staff, educates more than 500,000 refugee students a year, and operates in five areas (Jordan, Lebanon, Syria, West Bank, and Gaza). UNRWA students outperform public schools in Jordan, West Bank, and Gaza – by a year's worth of learning – as evidenced by TIMSS 2007 results. Thus, UNRWA students in Jordan, West Bank, and Gaza on average achieve scores 23 to 80 points higher than their peers at public schools, even after controlling for student characteristics and for urban or rural contexts. The reasons include:

- UNRWA selects, prepares, and supports its education staff to pursue high learning outcomes
- Time-on-task is high in UNRWA schools and this time is used more effectively than in public schools
- UNRWA schools have a world-class assessment and accountability system

UNRWA has a well-defined and carefully implemented accountability system to assess and support teaching and learning. Assessments are priority and are disseminated to teachers (to inform lesson plans and instructional practices) and to policy makers. Teachers are also required to participate in internal and external monitoring and evaluation. While both public and UNRWA evaluation systems include classroom observations and multiple criteria, UNRWA evaluations are more rigorous and frequent. To remain in the teaching profession in UNRWA, professional development and performance evaluations are requirements, with incentives for good performance and sanctions for poor performance<sup>39</sup>.

75. The two main strategies for differentiated financial rewards for teachers are career path reforms and bonus pay. Career path reforms typically make permanent promotions contingent on teachers' skills and performance rather than on seniority and expand salary differentials across different grades. Bonus pay programs are politically and technically easier to implement than career path reforms and do not have long-term fiscal or pension implications. Bonus programs typically offer a one-time reward for teachers (or schools) for specific results achieved during the prior school year. The evidence to date provides some evidence on short-term impacts on teacher and school performance<sup>40</sup>.

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<sup>37</sup> Ministry of Education of Ontario. 2010. *Teacher Performance Appraisal: Technical Requirements Manual*, retrieved from [http://www.edu.gov.on.ca/eng/teacher/pdfs/TPA\\_Manual\\_English\\_september2010I.pdf](http://www.edu.gov.on.ca/eng/teacher/pdfs/TPA_Manual_English_september2010I.pdf).

<sup>38</sup> World Bank. 2014. *Learning in the Face of Adversity: The UNRWA Education Program for Palestine Refugees*.

<sup>39</sup> World Bank. 2014. *Learning in the Face of Adversity: The UNRWA Education Program for Palestine Refugees*.

<sup>40</sup> Bruns, Barbara and Javier Luque. 2014. *Great Teachers: How to Raise Student Learning in Latin America and the Caribbean*. World Bank.

76. In this regard, the case of Chile’s teacher merit pay program is particularly informative. Since 1997, Chile instituted a group incentive pay program (*Sistema Nacional de Evaluación del Desempeño de los Establecimientos Educativos* or SNED), whereby all teachers within a school may be granted a bonus on top of their base salaries, contingent –primarily– on their students’ performance on national standardized tests. Other secondary criteria for SNED bonuses include the schools’ student grade repetition, dropout rates, equity policies, and working conditions<sup>41</sup>. To award the bonuses, the program compares schools with similar student and school-level characteristics, in order to ensure a level playing field for all.<sup>42</sup> The incentive bonus has been estimated to effectively raise teachers’ average monthly salaries between 5 to 11 percent annually<sup>43</sup>. The program has indeed motivated teachers to perform better, resulting in improvements in students’ standardized language and math scores, of up to 0.23 and 0.25 of a standard deviation in language and math, respectively<sup>44</sup>.

77. Ensuring that teachers are efficiently deployed to where their skills are most needed is another priority area for teacher reform in Jordan. Absent a purposeful allocation, teachers tend to gravitate towards better-off schools and easiest to teach subjects, widening learning inequalities and creating shortages in critical teaching areas. With regards to the former, Jordan has already begun to address this challenge by providing monetary bonuses and subsidized housing to incentivize teachers in taking up posts in hard-to-staff schools<sup>45</sup>. Yet, further incentives might be needed to attract the best teachers to low-performing schools. For example, high-performing education systems including Australia, New Zealand, and the United States provide scholarships, travel stipends, and promotion opportunities as additional incentives to attract talented teachers to disadvantaged areas.<sup>46</sup>

78. The case of the State of California, US, may be particularly informative for the design of innovative incentive schemes in Jordan. From 2000 to 2002, California introduced the Governor’s Teaching Fellowship –an incentive aimed at attracting highly talented, newly licensed teachers to staff low-performing schools. Application to the fellowship was competitive, entailing a selective screening process whereby prospective students submitted their school transcripts, letters of recommendations, resume, and statement of interest, and also participated in an interview. Successful applicants received 20,000 USD conditional on a four-year commitment to teach in a low-performing school. The fellowship amount offered a 15.1 percent annual premium on the starting salary of these teachers, and was estimated to

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<sup>41</sup> Alger, V. 2014. *Teacher Incentive Pay that Works: A Global Survey of Programs that Improve Student Achievement*. Barbara Mitchell Centre for Improvement in Education.

<sup>42</sup> Alger, V. 2014. *Teacher Incentive Pay that Works: A Global Survey of Programs that Improve Student Achievement*. Barbara Mitchell Centre for Improvement in Education.

<sup>43</sup> Manzi, J., K. Strasser, E. San Martín, and D. Contreras. 2008. *Quality of Education in Chile*. Measurement Center, Catholic University of Chile; Mizala, A. and P. Romaguera. 2005. “Teachers’ Salary Structure and Incentives in Chile,” in Emiliana Vegas (editor) *Raising Student Learning in Latin America: The Challenge for the 21st Century*, pages 103–150, World Bank; Mizala, A. and B. Schneider. 2014. “Negotiating Education Reform: Teacher Evaluations and Incentives in Chile (1990–2010),” *Governance* 27, 1 (January): 87–109; Vegas, Emiliana and Ilana Umansky. 2005. “Improving Teaching and Learning through Effective Incentives,” in Emiliana Vegas (ed.) *Incentives to Improve Teaching: Lessons from Latin America*, World Bank, pages 1–20.

<sup>44</sup> Rau, T. and D. Contreras. 2011. *Tournament Incentives for Teachers: The Case of Chile*, unpublished paper, University of Chile.

<sup>45</sup> World Bank. 2010. *Jordan Teachers SABER Country Report*.

<sup>46</sup> OECD. 2011. *Establishing a Framework for Evaluation and Teacher Incentives: Considerations for Mexico*, OECD Publishing.

increase the likelihood of similar teachers taking up posts in low-performing schools by 28 percentage points<sup>47</sup>.

79. As for hard-to-staff subjects, Jordan has identified important teacher shortages in critical subjects such as mathematics, science and technology. However, mechanisms to incentivize teachers to take up teaching posts in these subjects are absent.<sup>48</sup> Teacher reform should focus on introducing effective incentive packages to offset shortages in these critical subjects by attracting highly qualified teachers and even mid-career professionals. A number of education systems have designed and implemented incentives of this type, offering Jordan a wealth of experiences for guiding its policy reform. For example, in the US State of Utah, mathematics and science teachers receive a 5,000 bonus on top of their base salary. In the State of New York, teachers for shortage subjects (mathematics, science, and special education) receive housing assistance of up to 15,000 USD. Similarly, the United Kingdom covers a significant portion of qualified mathematics, science, special education and technology teachers' tuition expenses, as an incentive to attract them into these subjects<sup>49</sup>.

## B. Realigning Capital Investments

80. This report has documented the relatively low level of capital spending in total education spending in Jordan, as well as its dispersion across the Ministry of Education and Ministry of Planning and International Cooperation. In addition, policy makers are concerned about multiple infrastructural aspects of the education system: overcrowded classrooms, partly resulting from the influx of Syrian refugee students; and the need to resort to renting inappropriate buildings for lack of land for constructing schools. At the same time, available school buildings are on average small.

81. As a first priority, there is a need to consolidate at the Ministry of Education, if not management of capital spending, at least the accounting of capital spending. Currently, no single government entity, neither the MOE nor MOPIC, has a complete picture of capital spending for the education sector, i.e. including financed by the treasury as well as loans and donors. While there may be reasons for managing funds from different sources by different ministries, the Ministry of Education is the appropriate government entity for oversight of all capital spending, including determining priority needs and deploying resources accordingly.

82. The Ministry of Education today has an impressive EMIS that has supplied much of the data used in this report. It contains data by school in terms of numbers of students, teachers, and classrooms, amongst other information. However, in order to make decisions regarding expanding existing schools or building new ones, the MOE requires a geographic database that maps schools across the country in addition to the EMIS. Ideally, it also requires relatively detailed population data and population projection data. The MOE has begun working on a school mapping as it recognizes that overcrowded classrooms are not the norm but rather specific to certain areas of the country. However, the question remains whether the data from this school mapping will be used for purposes of decision making regarding expansion of

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<sup>47</sup> Steele, J. L., R. J. Murnane, and J.B. Willett. 2009. "Do Financial Incentives Help Low-Performing Schools Attract and Keep Academically Talented Teachers? Evidence from California," *NBER Working Paper 14780*, Cambridge, MA: National Bureau of Economic Research (NBER).

<sup>48</sup> World Bank. 2010. *Jordan Teachers SABER Country Report*.

<sup>49</sup> OECD. 2011. *Establishing a Framework for Evaluation and Teacher Incentives: Considerations for Mexico*, OECD Publishing.

existing schools or establishment of new ones. Anecdotal evidence suggests that too often in Jordan, communities insist on expansions of schools and construction of new ones and politicians comply rather than risk losing favor with communities.

83. Other factors that lead to existence of small schools are at play as well, such as the lack of a clear consistent policy on school transportation or busing – an approach that would serve to reduce the need for construction of new schools potentially (although it would be associated with increased recurrent transportation costs). The same issue applies regarding the policy on co-educational schools, which in some communities means that schools are co-educational through grade 4 while in others only through grade 2. Having separate schools for girls and boys has clear repercussions on the numbers of schools needed in a community, and the earlier the separation, the greater the loss in terms of economies of scale.

84. Even if maintaining smaller schools remains a necessity in Jordan – perhaps in rural or more remote areas where commuting times may be so long that they would negatively impact students and teachers by increasing fatigue – school clustering may be a viable option. School clustering brings together groups of small schools and has become a common response to the disadvantages associated with smaller schools. Clustering allows individual schools to maintain their identity and institution, while at the same time sharing resources, experience, and good practices<sup>50</sup>. Schools in a cluster maintain their institutions and establish formal links of cooperation with other institutions, sometimes sharing a common management or direction. School clusters can implement a more horizontal management model, one that encourages peer-level exchanges. Different countries and regions have adopted different forms of clustering.

85. In Portugal, school clusters were formed not only as a means of formal cooperation and coordination between different schools (so as to rationalize the administration and management of schools), but also to provide a sequential and coordinated path between the different levels and cycles of compulsory education<sup>51</sup>. Portuguese school clusters are composed of pre-school establishments and one or more education cycles, with a common administrative and management body. This facilitates transition between different levels of education in one specific geographical area, and it also helps overcome the isolation of the different establishments and rationalize the use of resources.

86. In Catalonia and other autonomous communities in Spain, clustering schools share teachers who travel between the different rural schools in the cluster, a system that helps overcome the scarcity and the high costs of specialized teachers in rural areas<sup>52</sup>. Such a system might be applicable for Jordan in order to address the dearth of male science and math teachers, with incentives provided to compensate them (and the fact that they are male means that it is more culturally acceptable for them to travel to more distant schools). In Catalonia, each cluster is coordinated by a common direction body including a cluster principal (one of the principals of the clustering schools), a chief of studies, and a secretary. Teachers will commonly teach in one school per day, to avoid travelling between schools during the day.

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<sup>50</sup> Ares Abalde, Macarena. 2014. "School Size Policies: A Literature Review," *OECD Education Working Papers*, No. 106, OECD Publishing.

<sup>51</sup> Ares Abalde, Macarena. 2014. "School Size Policies: A Literature Review," *OECD Education Working Papers*, No. 106, OECD Publishing.

<sup>52</sup> Ares Abalde, Macarena. 2014. "School Size Policies: A Literature Review," *OECD Education Working Papers*, No. 106, OECD Publishing.

In most clusters, teachers come together from the different schools every two weeks to plan school activities.

87. Separate from the question of small schools, Jordan also faces the issue of lack of land for school construction in densely populated areas such as Amman, so that the MOE has to resort to renting inappropriate buildings. These rented buildings seem to be negatively associated with student learning outcomes, as was shown in the analysis of the *tawjihi* pass rates. At the same time, the issue of overcrowded classrooms is very much an urban phenomenon and in schools with only a single shift. The MOE regards double shifting as an attribute of its education system that is to be avoided, even if it means that inappropriate buildings need to be rented instead. In the continued absence of land for construction of new schools, and the apparent negative effects of rented buildings on learning outcomes, the policy on double shifting may need reconsideration. There is now recent experience as a result of the Syrian crisis with double shifting, given that Syrian students are often in the second shift in public schools, and valuable lessons learned. These could inform a revision of the policy and implementation of double shifting for Jordanian students.

### C. Addressing Regional Variation

88. This report has documented variation across governorates in terms of enrolment rates in pre-primary and secondary – though not basic – education, as well as the fact that governorate of residence is associated with *tawjihi* pass rates (and more so than school attributes such as school size, class size, or student-teacher ratio). There is a clear need for the MOE to try and understand the reasons behind this geographic variation better and to try to address them. The fact is that governorates do vary widely in terms of population density, for example, with 70 percent of the population estimated to reside in just 3 governorates (Amman, Irbid, and Zarqa). At the same time, it is not only population density that plays a role in terms of learning outcomes, as the governorate with lower *tawjihi* pass rates vary in this respect as well.

89. Yet the MOE treats all governorates in the same manner and its departments are organized by level of education and pedagogical theme instead of including consideration of lagging regions, for example. Thus, the MOE consists of the following departments: Minister's Office; Director-General's Office; Buildings and International Projects; Planning and Education Research; Special Education; Education; Private Education; Human Resources; Queen Rania Center for Educational Technology and Information; Examinations and Testing; Vocational Education; Monitoring, Inspection, and Quality Assurance; Legal Affairs; Financial Affairs; Cultural and International Relations; Procurement; Curriculum and Textbooks; Educational Activities; Educational Media and Social Communication; General Diwan; Secretariat of the National Jordanian Board for Education, Culture, and Science; Secretariat of the Education Board and Planning Committee; Center for Educational Training; and the Unit for Development Coordination. In none of the above-mentioned departments is there particular attention paid to education of the socio-economically disadvantaged, for example, or of the needs of remote or lagging areas.

90. In addition, discussions with MOE staff indicate that education sector budget preparation is done very much on an annual historical basis and based simply on demographic needs. The budget preparation process may be described as follows: in April each year, the MOE Finance Unit solicits budget requests for the following year from the 43 Education Directorates in Jordan. The Directorates prepare their requests based on the student numbers they anticipate for the following year. The Finance Unit compiles

all requests and provides them to the individual Ministry Departments for their review, e.g. vocational schools to the Vocational Department, etc. The Departments in turn may revert to the Directorates for clarifications or modifications – but mostly if something seems particularly out of the ordinary. In July, a first draft of the Ministry budget is then submitted to the Central Planning Agency. In other words, Education Directorates mostly request additional teachers and other standard inputs based on projected enrollment for the following year.

91. In addition, MOE’s requested budget is always revised downward in discussions with the Ministry of Finance. And in terms of budget execution, every month the Education Directorates submit their payment requests, which are compiled in the Ministry and submitted to the Ministry of Finance. Every year, certain line items run out of funds and transfers from other line items that have under-disbursed are made. For example, in 2014 the funds for water and electricity costs were depleted, and transfers were made out of the funds for textbooks. Here again, there is little effort at prioritization of certain line items above others – with the exception of salaries, which are always the first responsibility in terms of disbursement.

92. The budgeting process described above is not conducive to tackling the issue of geographic variation in education sector outcomes. Instead, arguably a more “projectized” approach, one that the Ministry has recently employed in addressing the Syrian refugee students crisis, is likely more appropriate. Given the recent experience with devising a 3-year plan for the Syrian refugee students, education sector stakeholders in Jordan seem well poised for similar planning for lagging regions in the country.

93. Table 28 provides succinctly short- and more medium-term measures that could be undertaken to implement policy reforms in each of the areas of motivating teachers to perform, realigning capital investments, and addressing regional variation.

**Table 28: Policy Options for the Short- and Medium-Terms**

Policy Area	Considerations for the Short-Term (1-2 years)	Considerations for the Medium-Term (3-5 years)
<b>1.1 Motivating Teachers to Perform</b>	<ol style="list-style-type: none"> <li>1. Select adequate indicators to measure teacher performance that have been proven to drive student learning and that lie within teachers' span of control<sup>53</sup></li> <li>2. Establish a standardized system to collect such indicators, with school principals at the frontline of monitoring endeavors, and Education Directorates and MOE conducting independent verification<sup>54</sup></li> <li>3. Design and pilot a teacher bonus program that is tied to the above indicators</li> <li>4. Conduct an impact evaluation to measure the effect of the bonus program on teacher performance and, to the extent possible, on student learning</li> </ol>	<ol style="list-style-type: none"> <li>5. Informed by results from the impact evaluation, adjust the pilot design and recalibrate the incentive amount and scheme as need be</li> <li>6. Roll out the teacher bonus program across governorates</li> <li>7. Ensure continuous monitoring of the program by an oversight body housed inside the MOE (potentially the newly established Accountability Unit)</li> <li>8. Use collected teacher performance indicators to design and continuously update professional development programs</li> </ol>
<b>1.2 Effectively Deploying Teachers to Hard-to-Staff Schools</b>	<ol style="list-style-type: none"> <li>1. Conduct/update a detailed mapping of hard-to-staff schools in the country</li> <li>2. Design and pilot an incentives package to attract high quality newcomers as well as experienced teachers to these schools</li> </ol>	<ol style="list-style-type: none"> <li>4. Informed by the evaluation results, adjust the piloted incentives package as need be</li> <li>5. Roll out the incentives package and update the school mapping annually to ensure proper targeting</li> </ol>

<sup>53</sup> See World Bank. 2015. *Accountability: The Last Mile on the Route to Quality Service Delivery – Evidence from Jordanian Schools & Primary Health Centers*, for further detail and examples of indicators to measure teacher performance in Jordan.

<sup>54</sup> See World Bank. 2015. *Accountability: The Last Mile on the Route to Quality Service Delivery – Evidence from Jordanian Schools & Primary Health Centers*, for further detail on the monitoring role of school principals in Jordan.

	<ol style="list-style-type: none"> <li>3. Conduct an evaluation of the effectiveness of the incentives package in staffing these schools</li> </ol>	
<p><b>1.3 Effectively Attracting Teachers to Hard-to-Teach Subjects</b></p>	<ol style="list-style-type: none"> <li>1. Design and pilot an incentives package to recruit talented candidates for taking up teaching posts in identified shortage subjects (e.g. mathematics and science)</li> <li>2. Conduct an evaluation of the effectiveness of the incentives package on teacher recruitment in these subjects</li> </ol>	<ol style="list-style-type: none"> <li>3. Informed by the evaluation results, adjust the piloted incentives package as need be</li> <li>4. Roll out the incentives package and update shortage subjects annually to ensure proper targeting</li> </ol>
<p><b>2. Realigning Capital Investments</b></p>	<ol style="list-style-type: none"> <li>1. Upon consultations with relevant stakeholders, consolidate oversight and possibly also accounting of capital spending at the MOE</li> <li>2. Use available information on school mapping to identify candidates for school clustering and double shifts</li> <li>3. Initiate school clustering and double shifts in a small sample of schools and conduct an evaluation of its effectiveness</li> <li>4. Undertake a complete school mapping exercise that is linked to the EMIS</li> </ol>	<ol style="list-style-type: none"> <li>5. Informed by the evaluation results and the complete school mapping, consider rolling out school clusters and double shifts to increase economies of scale</li> <li>6. Institute mechanisms to ensure all capital spending, including the definition of priority needs and the deployment of resources, are overseen by MOE and conducted based on identified need through the EMIS</li> </ol>

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### **3. Addressing Regional Variation**

- 1.** Assign the mandate of improving educational outcomes in lagging schools/areas to an existing or new department at MOE.
  - 2.** Develop a 3-5 year plan (to be executed by the designated department) on how to strategically address educational needs in lagging schools/regions, including the necessary steps for budgetary planning that takes into consideration regional variation in educational outcomes
  - 3.** Execute the developed plan and evaluate regional variations in educational outcomes annually
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