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Educational Underachievement Among Boys and Men

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Abbreviations and Acronyms

ALIGNS	aligning levels of instruction with goals and the needs of students
CAST	Center for Applied Technology
EAP	East Asia and Pacific
ECA	Europe and Central Asia
EGRA	Early Grade Reading Assessment
GCC	Gulf Cooperation Council
GDP	gross domestic product
GPI	gender parity index
HCI	human capital index
IEA	International Association for the Evaluation of Educational Achievement
LLECE	Latin American Laboratory for Assessment of the Quality of Education
MENA	Middle East and North Africa
MPL	minimum proficiency level
OECD	Organisation for Economic Co-operation and Development
PASEC	Programme for the Analysis of Education Systems
PIAAC	Programme for the International Assessment of Adult Competencies
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
RISE	Research on Improving Systems in Education
SACMEQ	Southern and Eastern African Consortium for Monitoring Educational Quality
SDG	Sustainable Development Goal
STEM	science, technology, engineering, and mathematics
TALIS	Teaching and Learning International Survey
TaRL	teaching at the right level
TIMSS	Trends in International Mathematics and Science Study
UDL	Universal Design for Learning
UNESCO	United Nations Educational, Scientific and Cultural Organization
UK	United Kingdom
US	United States

Executive Summary

This report takes stock of educational underachievement among boys and men, examines the evidence on contributing factors, and explores what has been done to address the phenomenon. While female underrepresentation in secondary and tertiary education remain a significant issue in some, particularly low-income, countries, more than 100 countries have lower levels of male secondary and tertiary education enrollment and completion. Learning poverty rates—the proportion of children unable to read and understand a simple text at 10 years of age—are higher for boys than for girls in all regions and almost all countries of the world. Across various grades and subjects, in many countries boys tend to have poorer learning outcomes than girls, with substantial differences in some countries, particularly in the Middle East and North Africa (MENA) region, as regularly demonstrated in international assessments of student learning. For high-income countries, this is not a new development—it has been readily acknowledged and discussed in the literature since the 1990s. What has become increasingly common is the observance of this gap in middle-income countries as well.

Throughout this report, educational underachievement is referred to in three ways. First, underachievement in terms of low levels of participation in education, including enrollment and retention; second, underachievement in terms of low levels of completion or graduation; and third, underachievement in terms of low student learning outcomes, also referred to as “underperformance”, and assessed in terms of international or regional large-scale student assessments.

In terms of education participation and completion, underachievement of males is particularly noticeable at the tertiary education level. Almost 75 percent of middle-income countries and 95 percent of higher-income countries have fewer men than women enrolled at the tertiary education level, and the proportion of male graduates is substantially lower than that of female graduates. At the secondary education level, as countries become wealthier, boys’ underachievement compared to girls’ in terms of education participation and completion tends to worsen. However, the gap between boys and girls narrows again for countries at higher levels of income, probably due to overall high levels of secondary education enrollment.

There are important differences in achievement between boys and girls when it comes to reading, a foundational skill on which success in other subjects and further grades is based, and a central aspect of the learning poverty rate. Boys at the primary and secondary education levels tend to score lower on international and national assessments of reading than girls, with boys’ underachievement in reading often starting very early in their school life. In some countries, boys’ underperformance spans several key subject areas, including science and mathematics. Other types of skills are also less well developed among boys, including collaborative problem solving, teamwork, and the capacity to understand the perspectives of others (OECD 2017b; OECD 2020). This phenomenon is affecting some countries much more than others, and middle-income countries especially. Sometimes the differences are modest, clustered in certain areas or groups, and in some instances the gap narrows over time; however, the universality of this finding is noteworthy and of concern.

In many countries, the overall gender gap has been the result of a clutch of poorly-performing male students who bring down the average, particularly in lower-middle-income countries. This characteristic is reinforced by the observation that poor academic performance for boys and girls is closely related to the factor of disadvantage—whether defined by income or other markers such as race, ethnicity, or disability. However, as is discussed in this report, boys tend to underperform girls

who experience similar disadvantages. Systemic and institutional racism and discrimination is closely related to underachievement generally, and male underachievement specifically.

This report discusses the causes of educational underachievement among boys and men through three lenses: the labor market, social norms, and characteristics of the education process (learning and teaching). From the labor market perspective, the incentives for continuing schooling for men are sometimes different than for women because of historical patterns of work opportunities: men may have (or have had) the possibility of finding work without education. However, although recent changes in the returns related to education should lead boys and men to continue their studies, puzzlingly, this is often not the case. There may be other factors influencing this phenomenon rather than choice. When students fall behind, whether they are boys or girls, it is difficult to catch up. So it is not necessarily that boys and men underestimate the economic and social benefits of education; it may be that their potential to gain access narrows considerably because of previous failures. This is a strong argument for addressing potential barriers to achievement early in a child's life.

Prevalent social norms that dismiss the importance of schooling for boys and men provide some of the answers to why boys and men are underachieving. However, families and peers may be communicating a panoply of norms; thus it is difficult to determine how to reinforce some norms over others.

Education systems that emphasize the specific needs of all students and create a school climate that promotes inclusion and addresses gender stereotypes will benefit both boys and girls. However, this does not mean that specific actions for boys should not be developed: attention should be paid to the sophisticated interaction of gender and education in the underachievement of boys and men because it can provide clues to addressing the problems.

Every aspect of male educational underachievement is accentuated by poverty. "Money matters" when it comes to male educational underachievement (Autor and Wasserman 2013). In poorer American households, boys have lower rates of kindergarten readiness, test scores, and graduation, and higher levels of truancy, disciplinary problems, disability, and juvenile delinquency (Autor et al. 2016). Socioeconomic factors have always been very salient in terms of educational achievement, with the differences between poor and rich often outweighing the differences between males and females. However, an interesting finding of much analysis on this subject indicates that boys and men tend to be more sensitive to poverty and other types of disadvantages than girls are.

Very few countries have put in place systemwide policies or programs to address issues of educational underachievement among boys and men. In terms of education and labor markets, some interventions have included gender-based quotas for entry to university, raising young men's awareness of work opportunities after graduation, and the promotion among boys and young men of technical education leading directly to the labor market. These types of interventions have had mixed results. Relating to social norms, attempts have been made to create a counter-offensive by supporting a social network of key actors in the lives of boys and men that promotes norms of educational success, for example through peer groups, clubs, or effective parenting programs. Other approaches have focused on the teacher, being important role models in students' lives and therefore strong vectors for the transmission of norms. Interventions that focus on the quality of education appear to be crucial for underachieving boys, while also benefiting girls.

There are two important lessons learned from interventions to address underachievement. First, they require a multidimensional approach that brings together the family, the community, and the school. The solution cannot be found only in one space. Second, any approach that focuses on boys as a unitary and uniform group, and singular solutions, misses out on more sophisticated and effective

interventions. Male role models, adapting educational experiences to boys' interests, and vocational education may all offer promise, but for any of them to work, they require attention to the complex interactions of labor markets, social norms, and the specific characteristics of learning, teaching, and education systems.

Most importantly, the quality of education, particularly the ability of teachers to motivate students, find connections to students' lives, and focus on individual talents and needs, is crucial for underachieving boys, while also benefiting underachieving girls. The role of the school community in fostering a high-achieving, safe environment that is conducive to learning and thriving should be a fundamental goal of every school for every student, regardless of gender. Efforts to build the capacity of school leadership to foster a culture of school self-reflection and planning is directly related to this goal.

The finding that middle-income countries and wealthier countries that have relatively recently expanded access to education have some of the greatest problems of underachievement among boys and men is not particularly surprising. The importance of elevating the knowledge and skills of school leaders, teachers, and all educators to the level of quality needed cannot be underestimated. Having the systems in place to develop high-performing teachers and school leaders—that is, strong faculties of education in universities and teacher training colleges focused on professional practice in addition to academic research—and to lead school communities that also educate parents in effective practices for supporting their boys and girls is a work in progress. This report validates the need for continued and concerted efforts to improve the educational experience of learners, and highlights the fact that methods to engage and motivate those at the lower end of achievement—predominantly boys—are effective for all students.

This report asserts that male educational underachievement is a phenomenon that deserves the attention of policymakers, development agencies, academics and analysts, and the public. The phenomenon is found in most countries and appears to become more extensive as lower-income countries become richer. Because this disproportionately affects socially disadvantaged boys and men, there is a substantial equity dimension to this problem. The underachievement of boys and men has a significant impact on human capital formation, as measured by the human capital index (HCI). For example, if there were no underachievement of boys—that is, if boys had the same learning-adjusted years of schooling as girls—a child's long-term annual productivity would be 1.3 percent higher; maintained over the course of a decade, this represents an increase in total production of 13.9 percent. In MENA, this would be a figure as high as 33.9 percent.

This report also provides a framework for examining underachievement among boys and men. The framework consists of three key aspects: (1) labor market patterns; (2) social norms; and (3) learning, teaching, and characteristics of education systems. These three aspects cover almost all of the myriad of factors known to have an influence on the educational outcomes of boys and men.

Finally, this report proposes a research agenda that will help to accelerate a deeper understanding of the issues of male educational underachievement at the global and national levels and the potential solutions. To develop effective programs and policy actions further research is necessary, including to test different approaches and better understand the cross-disciplinary dynamics that contribute to educational underachievement among boys and men. Three paths of potential research are proposed to pursue in the future: (1) in-depth country studies; (2) thematic studies of areas that have previously been underdeveloped, such as higher education and social and economic disadvantage; and (3) applied research, such as on the impact of efforts to involve the community in school programs that aim to reduce the dropout rate. Better data collection and analysis is also called for to help target responsive instruction and educational opportunities to boys identified as being at the highest risk of

educational failure and the most needful of additional supports, which need not be to the detriment of support for girls also in need of special support.

The report concludes with a call for a holistic view of gender, as opposed to one in which girls'/women's and boys'/men's achievement in education is seen in isolation from one another. Such an approach would be useful at the national level, providing a balanced view of the needs of all groups and identifying the approaches that work for boys/men, girls/women, and in some cases all children/adults.

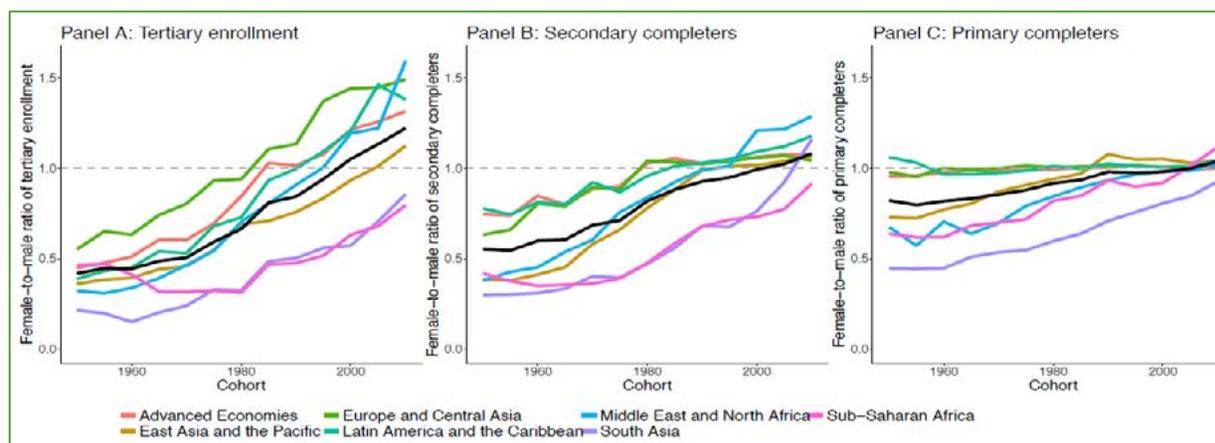
1. Introduction

When I was little, I didn't have the chance to study. Well I guess I did but I wasted it. You know, when you're a guy in my neighborhood, you don't want to worry about anything like that. You just wanna goof off. My mother would yell at me to go to school but I'd run off. And there was no man around the house to run after me. Today, now that I'm older, s--t, I'm gonna study. Without an education, it's already hard enough to find work. (Anderson, 21, African-Brazilian, resident of a favela in Rio de Janeiro, Brazil) (Barker et al. 2012, 138).

More than 100 countries have lower levels of male education enrollment and completion at the secondary and higher education levels (Bossavie and Kanninen 2018). Learning poverty rates are higher for boys than girls in all regions and almost all countries of the world. In addition, various measures indicate that boys tend to have poorer learning outcomes than girls in many countries at the primary and secondary levels, with substantial differences in many countries, particularly in the Middle East and North Africa (MENA) region. For high-income countries, this is not a new development—it has been readily acknowledged and discussed in the literature since the 1990s. What has become increasingly common in recent years is the occurrence of this gap in middle-income countries.

According to Bossavie and Kanninen (2018), the number of countries experiencing educational under-attainment among boys and young men has grown, particularly at the tertiary education level (figure 1.1). For cohorts born in the 1920s, the tertiary enrollment education gender parity index (GPI) (female/male) was 0.40; for the most recent cohorts (those born in the 2000s), the global ratio is 1.22. Male underachievement in terms of enrollment in the secondary and tertiary levels of education first occurred in the Europe and Central Asia (ECA) region with cohorts born in the 1950s; it continued in OECD and Latin American countries with cohorts born in the 1960s, and in MENA more recently, with cohorts born in the 1970s.

Figure 1.1 Gender gap reversal in educational attainment by region



Source: Bossavie and Kanninen 2018 based on data from the Barro-Lee Educational Attainment Database.

While this report focuses on educational underachievement among boys and men, it does not imply that males and females are in competition for educational opportunities, or that the challenge of ensuring access to quality and meaningful education for girls and women no longer exists. Trends

indicate the success of many programs that have aimed to improve girls' educational outcomes; however, girls' access to basic education continues to be a challenge in the poorest countries, and school closures due to the COVID-19 pandemic threaten to set back progress in those countries and many more. Throughout Sub-Saharan Africa and South Asia, many girls do not have access to secondary education, and sometimes even to primary education. In addition, in many countries, while women are enrolling in greater numbers in tertiary education, they are often enrolling in fields of study that could lead to fewer employment opportunities. Female access to science, technology, engineering, and mathematics (STEM) education constitutes the next frontier in gender education equality throughout the world. Finally, women are almost universally at a disadvantage when it comes to getting jobs at commensurate training or educational levels.

As has been the case in studies of female educational achievement, relative gender performance provides a lens for analyzing male educational performance. Relative growth in enrollment rates provides insights into male achievement today and over time. If tertiary education enrollment rates for girls grow much faster than boys over a given period, there is an evident change in the relative achievement of boys. Combined with large gaps in learning outcomes in some countries, the issue of educational underachievement among boys warrants attention.

However, there are two caveats to keep in mind when analyzing educational underachievement among boys and men. First, not all boys are underachieving. In some cases, the gender gap is modest, or the overall enrollment rates or learning levels are high for boys relative to other countries, even if they are surpassed by girls in their country.

Second, variation in male and female achievement is often strongly aligned with income and social inequality. In such cases, it could be claimed that low levels of male and female educational achievement are driven more by other considerations than those specific to gender. That said, as will be discussed in this report, male educational underachievement is often particularly prevalent at lower ends of the socioeconomic spectrum, pointing to the need to identify those boys most at risk.

Why Does It Matter?

The human capital of a population has a direct impact on its productivity and welfare (World Bank 2018a). Education, specifically, is considered an increasingly important determinant of lifetime income. In the United States and most other OECD countries, the data shows that earnings and employment prospects for less-educated workers have sharply declined over the last three decades.

Educational underachievement among boys and men constitutes a brake on human capital development, and can be addressed without reversing the gains made by girls and women. Even in cases where girls' and women's progress is the principal reason that achievement gaps are growing, addressing male underachievement has an overall positive effect. This is particularly important considering, as is discussed in this report, that there is a strong relationship between educational underachievement among boys and men and economic and social disadvantage.

The stagnation of male educational attainment bodes ill for the well-being of recent cohorts of U.S. males, particularly minorities and those from low-income households... As the importance of educational investments for earnings has magnified, differences in educational attainment and family formation among socioeconomic, racial, and gender groups have become an increasingly important differentiator in the life chances of children. (Autor and Wasserman 2013, 50).

Male educational underachievement also has social and political consequences, particularly if the boys or men are poor, or they belong to disadvantaged groups. There appears to be a strong relationship between male educational achievement and other phenomena such as violence and the unraveling of family, the loosening of community cohesion, poor health outcomes (e.g., growth in risky behaviors), and economic instability (Freire et al. 2018; Brozo 2019; Heilman et al. 2017).

The Human Capital Project indicates that for many low- and middle-income countries, raising the number of years of schooling and of learning achievement will have a substantial impact on a country's score on the human capital index (HCI) (World Bank 2018a). The HCI measures the human capital potential based on current trends in health, education, and other social indicators. Currently, worldwide, a child born in 2020 can expect to achieve on average just 56 percent of his or her potential productivity as a future worker (World Bank 2021). If future increases are dependent on the performance of specific groups in the population, then focusing on those groups can make a difference and should be given increased attention. In other words, addressing boys' underachievement could lead to significant improvements in productivity. If there were no underachievement of boys—that is, if boys had the same learning-adjusted years of schooling as girls—a child's long-term annual productivity would be 1.3 percent higher. Maintained over a decade, this represents an increase in total production of 13.9 percent (table 1.1). In MENA, the increase would be 33.9 percent, and in East Asia and Pacific, the increase would amount to 19.4 percent over 10 years.

Table 1.1 Change in HCI if boys' underachievement is eradicated

	HCI 2020	Alternative HCI*	Increase in annual productivity (%)	Increase in total production over 10 years (%)
Middle East and North Africa	0.57	0.58	3.0	33.9
East Asia and Pacific	0.59	0.60	1.8	19.4
Europe and Central Asia	0.69	0.70	1.1	11.4
Latin America and Caribbean	0.56	0.56	1.3	13.9
North America	0.75	0.75	0.7	7.2
Sub-Saharan Africa	0.40	0.40	0.5	4.9
South Asia	0.48	0.48	0.4	3.7
World	0.56	0.57	1.3	13.9

Source: Calculations based on World Bank 2021.

Note: *The alternative HCI is calculated based on the assumption that boys' learning-adjusted years of schooling are raised to the level of girls'.

Finally, addressing boys' and men's educational underachievement should also be seen through the optic of international and national commitments to provide all citizens with educational opportunities. If there is any group of individuals who are not receiving a quality education, whatever the group and whatever the reasons, there is a moral imperative to address it.

When education systems face crises, such as the COVID pandemic, their weaknesses are often laid bare. In many countries, education authorities are facing formidable challenges to ensuring quality education for all groups of students. The potential impact of the pandemic on the educational achievement of boys and men may be difficult to predict; but the findings of this report suggest that it is likely to merit specific attention, not least because failure to learn has cumulative implications.

The Objective of This Report

This report aims to increase understanding of educational underachievement among boys and men at the international level. The audience includes researchers, policymakers, and the public. Its purpose is to inform potential policy and program interventions in this area. The report argues that male educational underachievement requires action.

The first section of the report takes stock, and examines trends and distributions both between countries and within countries. The second section examines the literature on male educational underachievement, and identifies the principal analytical approaches that have been used to understand and explain the phenomenon. Section three explores the types of interventions that have been adopted by countries to address male educational underachievement. The final section presents the main conclusions of the report and proposes a research agenda.

Throughout this report, educational underachievement is referred to in three ways. First, underachievement in terms of low levels of participation in education, including enrollment and retention; second, underachievement in terms of low levels of completion or graduation; and third, underachievement in terms of low student learning outcomes, also referred to as “underperformance”, and assessed in terms of international or regional large-scale student assessments.

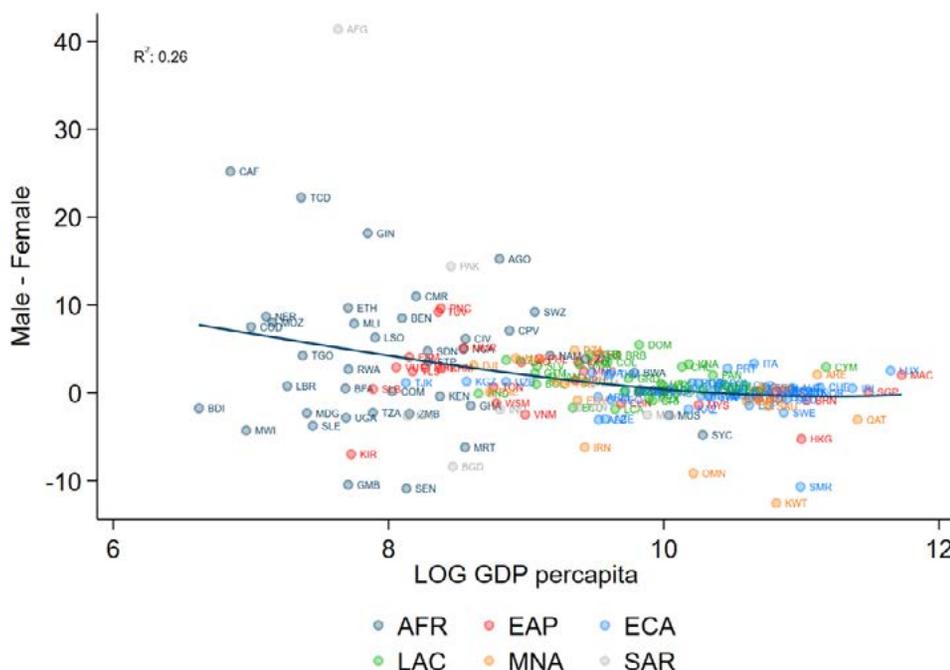
2. Taking Stock of Educational Underachievement Among Boys and Men

Educational underachievement among boys and men is found across the world in various ways and to various extents. However, given the limited global research in the field, further exploration of the phenomenon is needed from an international comparative perspective. This section takes stock of what is known about underachievement of boys and men in participation and completion of education, learning outcomes, and in terms of its distribution within countries.

Underachievement in Participation in and Completion of Education

How male educational underachievement is determined from country to country often depends on the level of education under review. At the basic, compulsory educational levels (that is, the primary and often lower secondary levels, depending on the country), the focus of much of the literature on boys' educational underachievement has been on learning outcomes. This is generally because there are few countries where girls' participation in basic education outnumbers boys' participation by a substantial degree. In the poorest countries, girls are often underrepresented in basic education. Countries at higher income levels tend to have reached full enrollment (i.e., 100 percent enrollment of both boys and girls) in basic education and thus, by definition there is little underachievement of boys relative to girls in terms of education participation (figure 2.1).

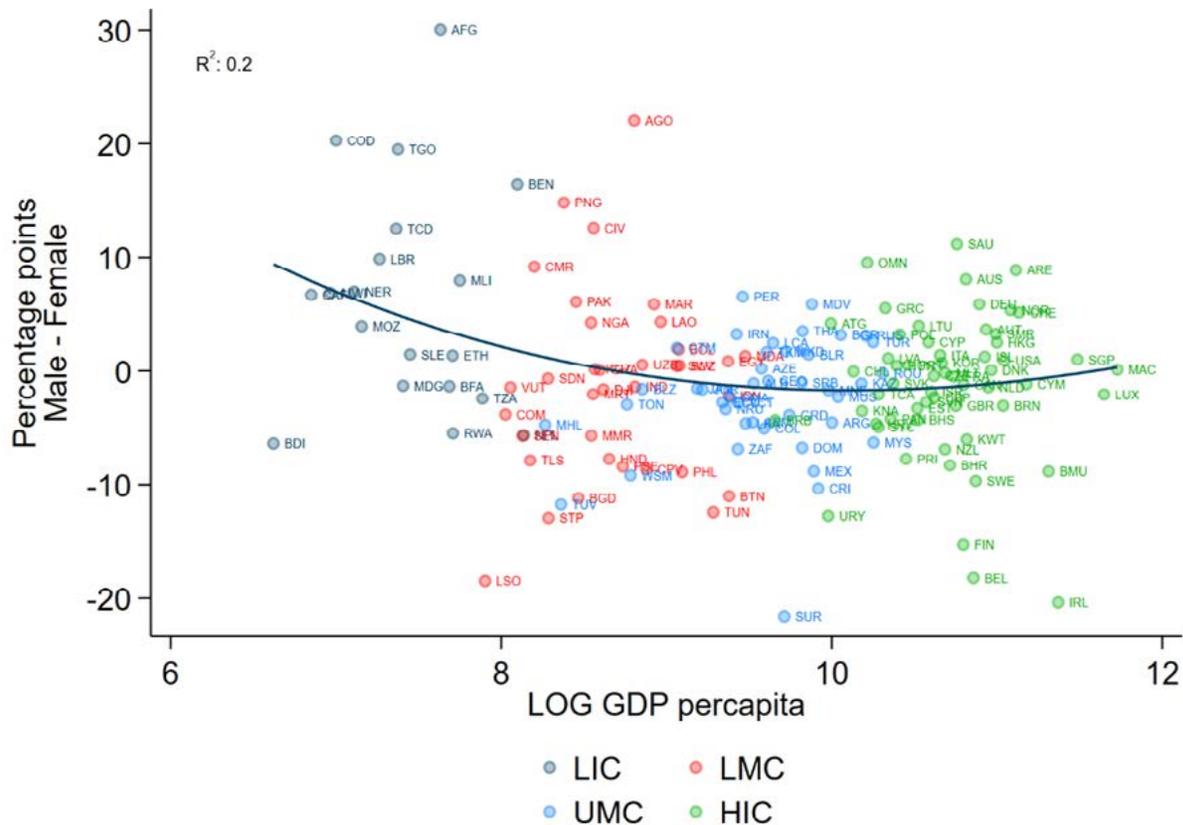
Figure 2.1 Gender gaps (boys - girls) in primary gross enrollment ratio (percentage points)



Source: Based on latest available data from the UNESCO Institute for Statistics database in the World Bank's EdStats database.

The degree of boys' underachievement at the secondary level in terms of participation in education appears to be associated with a country's income (figure 2.2). Out of 162 countries for which data are available, there are 90 countries (56 percent) in which boys are underachieving relative to girls at the secondary education level as determined by gross enrollment ratios (GER). However, among low-income countries, 7 out of 23 (30 percent) register boys' underachievement in secondary school participation, compared to 19 out of 35 (54 percent) for lower-middle-income countries, 31 out of 44 (70 percent) for upper-middle-income countries, and 33 out of 60 (55 percent) for high-income countries. This suggests that male educational underachievement may follow a pattern in which it is less prominent at the lower income levels, increases as a country's income level grows, and then begins to decline again for countries at the higher levels of income. This pattern likely mirrors the one seen in overall educational development across the world, in which richer countries tend to have higher levels of secondary enrollment, often closing in on full enrollment.

Figure 2.2 Gender gap (boys - girls) in secondary gross enrollment ratio
(percentage points)



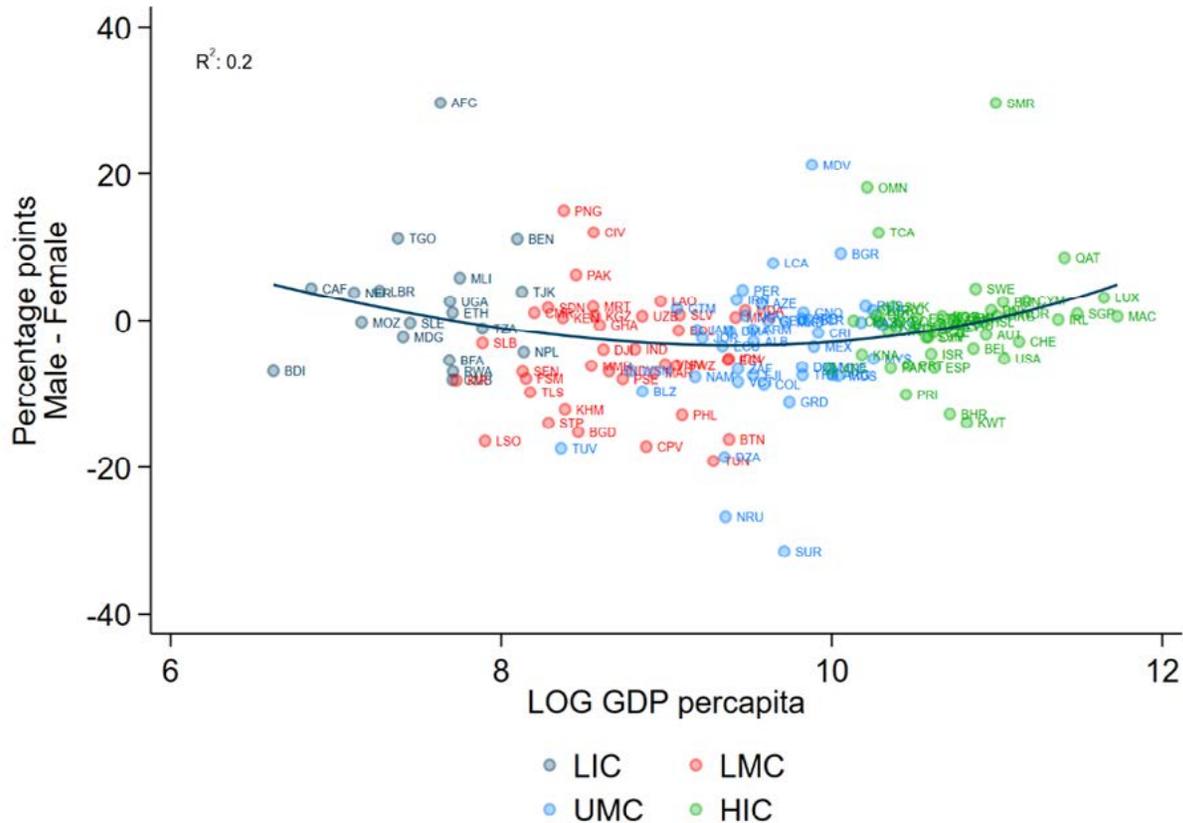
Source: Based on latest available data from the UNESCO Institute for Statistics database in the World Bank's EdStats database.

Note: The gross enrollment ratio is the number of students enrolled in a given level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education.

A similar pattern can be seen in secondary school completion rates (figure 2.3). Out of 159 countries for which data are available, 96 (60 percent) register boys' underachievement relative to girls at the secondary level as determined by completion rates. However, among low-income countries, 10 out of 22 (45 percent) register boys' underachievement in secondary school completion, compared to 25 out of 38 (66 percent) for lower-middle-income countries, 32 out of 45 (71 percent) for upper-middle-income countries, and 27 out of 51 (53 percent) for high-income-countries. Thus, a similar pattern

emerges, in which boys' underachievement in completion rates increases and then declines with the level of economic development.

Figure 2.3 Gender gap (boys - girls) in secondary school completion rate
(percentage points)

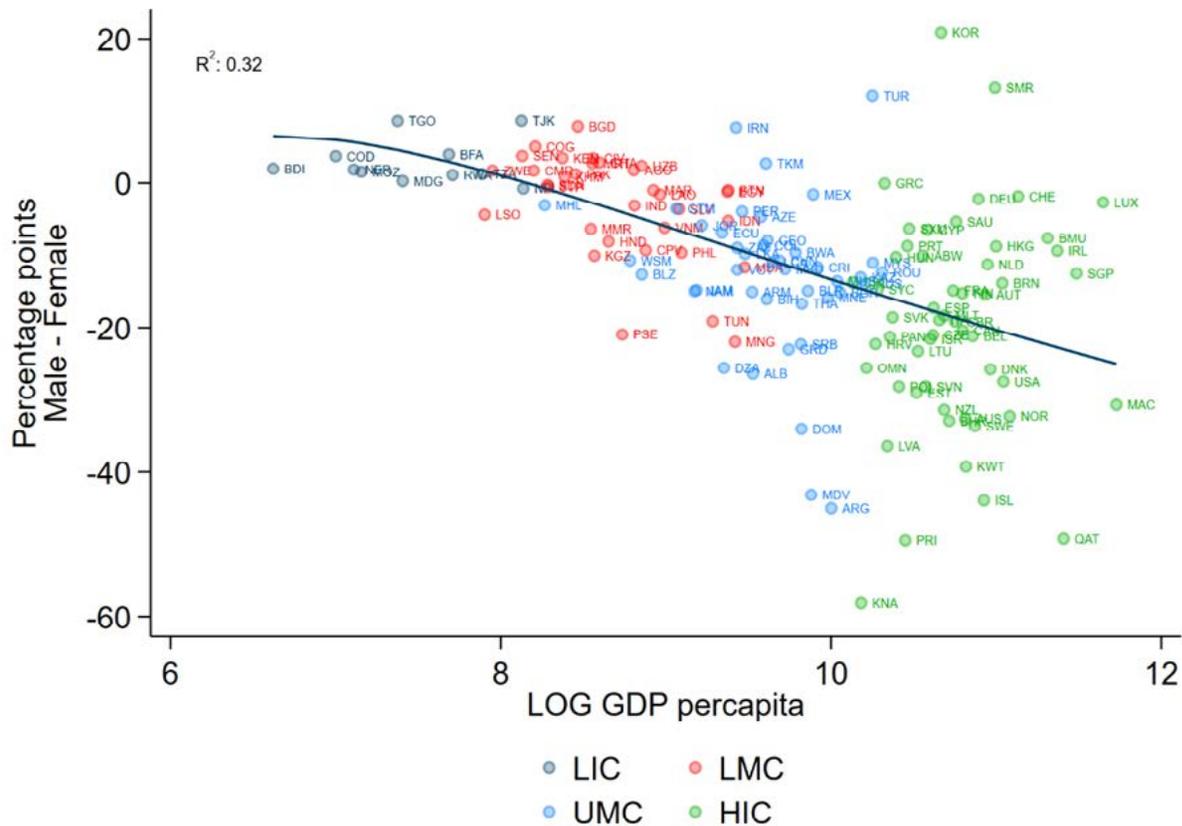


Source: Based on latest available data from the UNESCO Institute for Statistics database in the World Bank's EdStats database.

Note: Secondary completion is computed by dividing the total number of students in the last grade of secondary education school minus repeaters in that grade by the total number of children of official completing age.

Underachievement in educational participation is most prevalent among young men at the tertiary education level (figure 2.4). Out of 152 countries for which data are available, 116 (76 percent) register young men's underachievement relative to women at the tertiary education level as determined by gross enrollment ratios. However, among low-income countries, only 2 out of 18 (11 percent) register men's underachievement at the tertiary level. In contrast, the proportion jumps up sharply for middle and high-income countries: 20 out of 33 (61 percent) lower-middle-income countries registered men's underachievement at the tertiary education level, along with 40 out of 43 (93 percent) for upper-middle income countries, and 52 out of 55 (95 percent) for high-income countries.

Figure 2.4 Gender gap (boys - girls) in tertiary education gross enrollment ratios (percentage points)



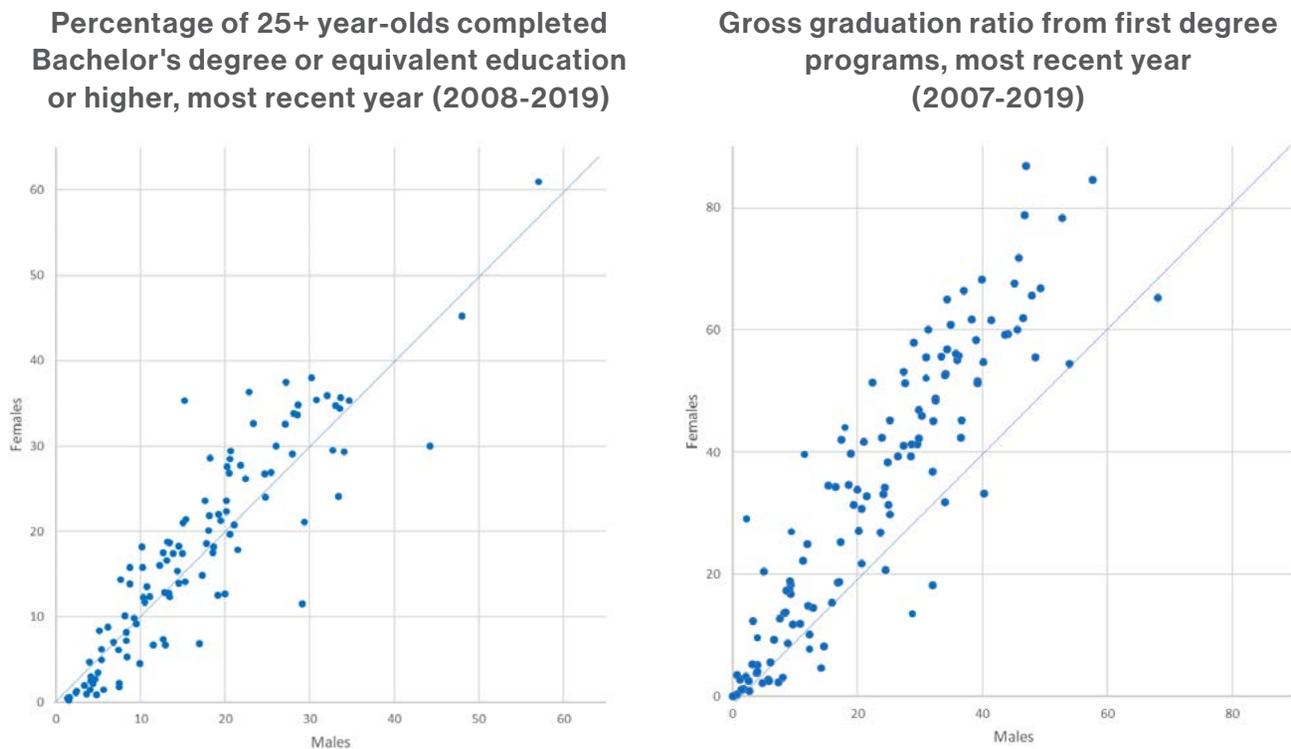
Source: Based on latest available data from the UNESCO Institute for Statistics database in the World Bank's EdStats database.

Note: For the calculation of gross enrollment ratios at the tertiary education level, the population used is the 5-year age group, starting from the official secondary school graduation age.

As is evident in figure 2.5, not only are fewer men participating in tertiary education, the proportion of men who finish their programs of study is substantially lower than for women.

Tertiary education is a very diverse undertaking—it encompasses a variety of types of educational experience (post-secondary technical school, community college, undergraduate and graduate education, etc.), and a multitude of disciplines. Taking this diversity into consideration, despite the evident achievement in terms of women's high levels of participation and completion at the tertiary level, there appear to be systematic differences in the choice of field of study between young men and women. These differences are already evident during secondary school, and they appear to strengthen at the tertiary education level. In particular, men are overrepresented in science, technology, engineering, and mathematics (STEM) subjects, economics, and many other related fields, while women are overrepresented in nursing, teaching, and the humanities (Hammond, et al. 2020). According to Delaney and Devereux (2021), women enrolled in STEM courses are more likely than men to switch out of these fields, and the dropout rate from tertiary STEM programs is often found to be higher for women than for men.

Figure 2.5 Rates of tertiary education attainment across the population: graduation and enrollment by gender, c. 2019



Source: Based on data from the UNESCO Institute for Statistics database in the World Bank's EdStats data

Another element important to take into consideration when examining underachievement in educational participation and completion at the tertiary level is that men outnumber women as researchers, particularly in the sciences. In a forthcoming publication, King reports that the absence of women among academics and administrators in Korea may be a contributing factor to their lack of researchers. Similarly, Kwiek and Roszka (2020) have indicated that, in Poland, female academics in science disciplines are often omitted from research groups.

Underachievement in Learning Outcomes

Across the world, almost half (48 percent) of children suffer from learning poverty: that is, they are unable to read and understand a simple text at around 10 years of age. The learning poverty rate is an indicator that combines the share of primary-aged children who are out of school with the share of students below a minimum proficiency in reading. Since reading is a gateway to learning in other areas, the learning poverty indicator serves as a proxy for foundational learning in other subjects, and illustrates countries' progress toward the Sustainable Development Goal (SDG) of inclusive and equitable quality education for all (SDG 4).¹ For low- and middle-income countries, the learning poverty rate rises to 53 percent.

Learning poverty data for boys and girls are available for just under 100 countries. However, in almost all of them, boys have higher rates of learning poverty than girls (figure 2.6). The countries with the greatest gaps in learning poverty for boys compared to girls are all six of the Gulf Cooperation Council (GCC) countries, along with Iran and Argentina.² The learning poverty indicator measures the proportion of children not reaching a minimum proficiency level (MPL). However, it does not

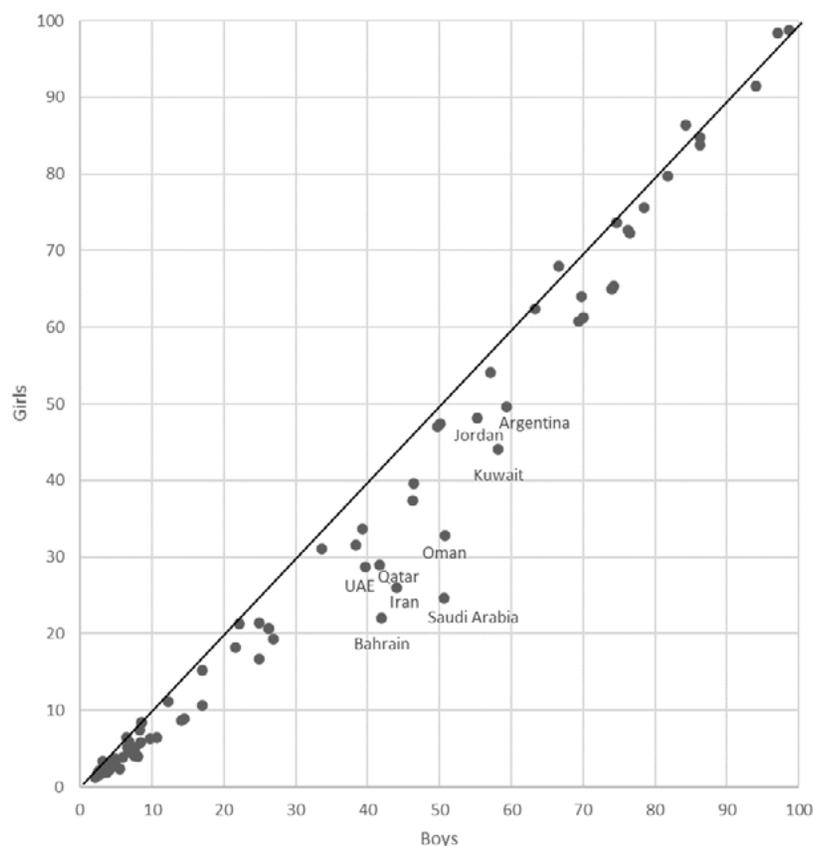
¹ <https://sdgs.un.org/goals/goal4#>.

² The GCC countries include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

indicate how far students are from the MPL, nor does it provide information on the distribution among the learning deprived within a country. Within the group of learning-deprived students, the learning deprivation gap—which is defined as the population-standardized average distance to the MPL for students below the MPL—is greater for boys than for girls in most countries in which learning poverty data are available by gender. In summary, on average across the world, there are more boys in learning poverty, and among those in learning poverty, boys are generally further from the MPL and have a greater spread within the group of the learning deprived than girls.

Figure 2.6 Learning poverty rate by country and gender, c. 2015

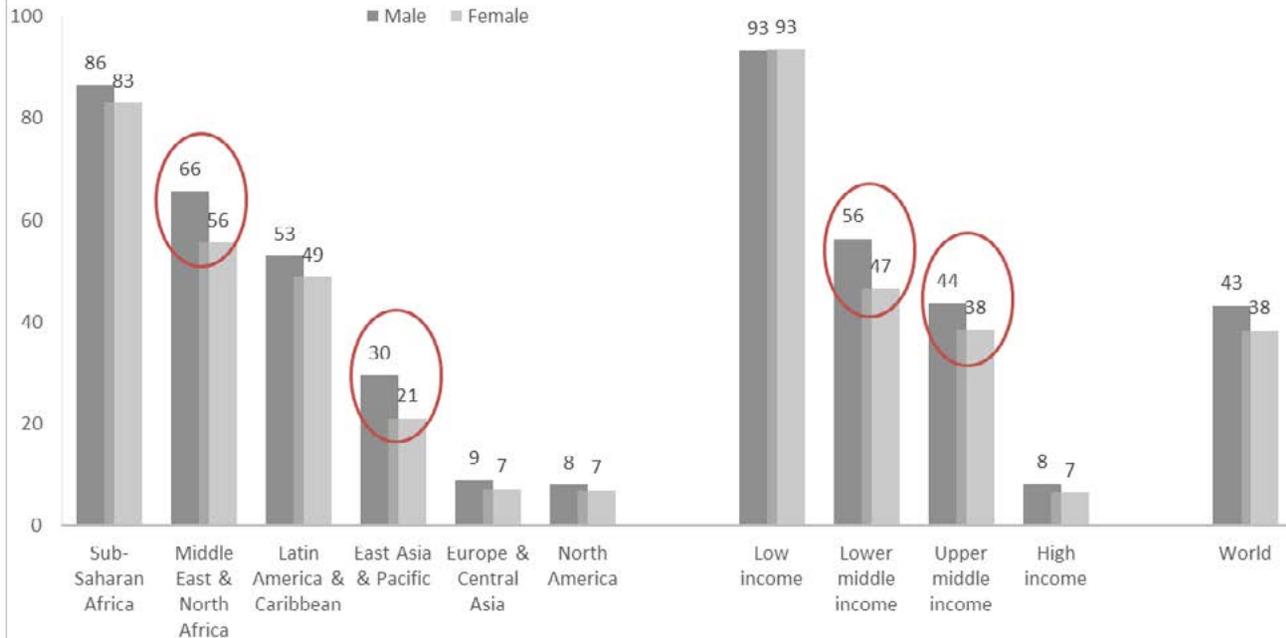
Share of children at the end-of-primary age who are below minimum reading proficiency level, adjusted by out-of-school children (%)



Source: Based on data from World Bank EdStats; joint World Bank and UNESCO Institute for Statistics data.

While girls in low-income countries face obstacles in accessing education, the learning poverty rate for boys and girls in low-income countries is the same, at a worryingly high 93 percent. Learning poverty rates are also approximately the same for boys and girls in high-income countries. But boys have significantly higher rates of learning poverty than girls in middle-income countries. For example, in lower-middle-income countries, the learning poverty rate for boys is 56 percent, compared to 47 percent for girls (figure 2.7). There are two regions in which boys' learning is significantly below that of girls, on average—the MENA and the East Asia and Pacific (EAP) regions.

Figure 2.7 Average learning poverty rates by gender, region, and income group, c. 2015
 Share of children at the end-of-primary-school age who are below minimum reading proficiency, adjusted by out-of-school children (%)



Source: Based on data from World Bank EdStats; joint World Bank and UNESCO Institute for Statistics data.

Results from the 2016 Progress in Reading Literacy Study (PIRLS), which is a key source of data for the learning poverty indicator, indicate that in almost two-thirds of countries boys' underperformance relative to girls in reading is greater in rural areas (towns, villages, and remote areas) compared to urban areas (cities, suburbs, and medium to large towns).³ The countries with the greatest gaps—meaning that boys' underperformance (compared to girls) is greater in rural than in urban areas—were Saudi Arabia, Iran, Qatar, Northern Ireland, South Africa, the United States, and Spain.

In some countries, boys' underachievement in learning outcomes is a more significant issue in certain subject areas. Reading, which forms the basis of the learning poverty indicator, appears to contribute to the largest differences among the foundational school subjects, with boys scoring substantially lower than girls. For all countries that participated in the PIRLS and the Programme for International Student Assessment (PISA), boys underachieve compared to girls in reading both in grade 4 and at age 15. Figure 2.8 shows that the greatest gaps were among those countries at the lower end of the achievement distribution. The countries with the most severe issue of boys' underperformance in reading include the GCC countries, South Africa, Iran, Egypt, North Macedonia, Jordan, and Finland.⁴

Similar findings come from regional student assessments such as the Latin American Laboratory for Assessment of the Quality of Education (LLECE): Regional Comparative and Explanatory Study (grades 3 and 6); the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ) (grade 6); and the Programme for the Analysis of Education Systems (PASEC) (grade 6). These assessments confirm that boys are underachieving in reading compared to girls, with a few exceptions, including Chad, Malawi, and Tanzania (appendix tables 1—3).

In many countries, boys' underachievement in reading starts very early. The Early Grade Reading Assessment (EGRA), originally developed by RTI International for USAID and used (or adapted for use)

³ Based on an analysis of PIRLS 2016 data undertaken for this study.

⁴ In Finland, while boys' underperformance compared to girls is large, Finnish boys perform at significantly higher levels than girls in many other countries.

in more than 40 countries, is a diagnostic instrument administered orally to assess subskills related to literacy acquisition of children (such as listening comprehension) in the early grades of primary school. The EGRA instrument is tailored specifically to each country (so as to be suitable for the local language and context); therefore, the ability to compare across countries is limited.⁵ However, when comparing boys and girls within countries, the EGRAs show significant underachievement of young boys in the Philippines, Jordan, and Vanuatu, though no differences in several other countries (appendix A, table 4). For example, while 48 percent of grade 3 girls in the Philippines were at the minimum expected proficiency level in reading (in Filipino), only 26 percent of boys were at that level.

In mathematics, boys' underachievement is limited to just a few countries; notably, the Philippines, and several of the GCC countries. This can be seen in all of the international and regional student assessments, including the Trends in International Mathematics and Science (TIMSS) study and PISA (figure 2.8) as well as LLECE, SAQMEC, and PASEC. For the countries with evident boys' underachievement in mathematics compared to girls, the issue starts early (before grade 4), and continues throughout schooling (as shown in PISA at age 15) (figure 2.8).

In science, boys' learning underachievement is more pronounced than it is in mathematics, possibly due to the greater reading requirements in science. The underachievement in science becomes more of an issue in secondary school (figure 2.8). Again, the greatest differences between boys and girls are found among countries with lower average achievement scores. All international and regional science assessments (TIMSS, PISA, and LLECE) show a similar pattern (figure 1.14 and appendix A, table 1). The countries with the greatest issues of boys' underachievement in science include those in the GCC, Egypt, Jordan, Finland, Iran, Cyprus, Malta, the Philippines, and Thailand (figure 2.8), as well as Chile, Paraguay, and Peru (appendix A, table 1).

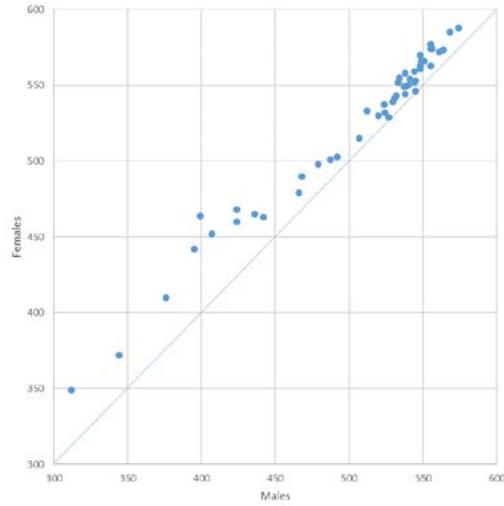
In some countries, boys' learning achievement has worsened, leading to greater gaps between girls and boys over time. Figure 2.9 shows that this was the case in the PIRLS and TIMSS assessments for various grades and subjects in Iran, Israel, the Philippines, Finland, and Kazakhstan.

Conversely, in some other countries, boys' learning achievement has improved at a greater rate over time than girls', thereby decreasing, and sometimes eliminating any statistically significant differences between boys and girls. This is the case in Chinese Taipei, Kuwait, Qatar, and the United Arab Emirates in PIRLS and TIMSS scores (figure 2.10). In PISA, the gender gap in reading performance narrowed between 2009 and 2018 in Estonia, Ireland, Macao (China), Peru, and Singapore due to improvements in boys' performance.

⁵ One important reason for being careful about making comparisons across countries is that languages vary in their orthographic complexity; thus, the expected rate of progress can vary considerably from country to country.

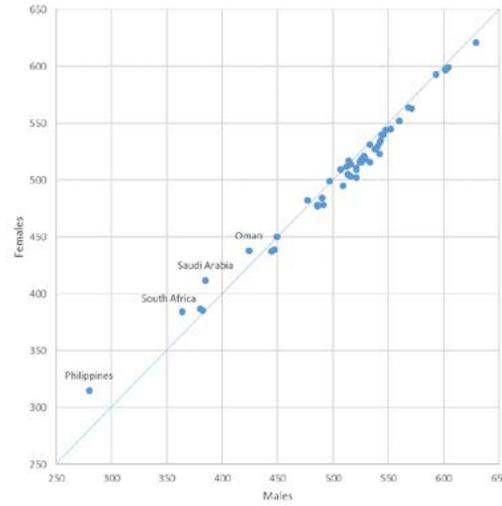
Figure 2.8 Average achievement (scale score) in TIMSS 2019, PIRLS 2016, and PISA 2018, by gender
GRADE 4

Reading



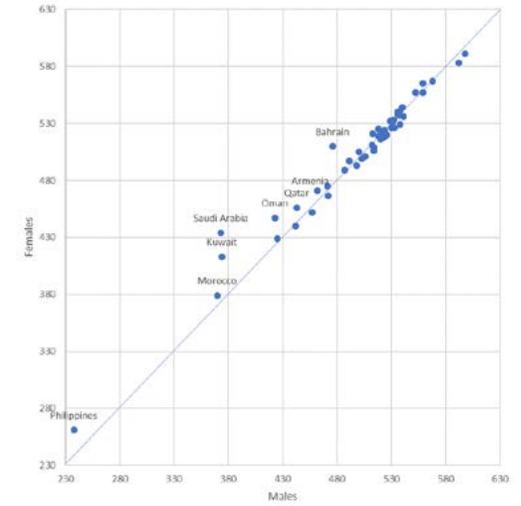
Source: PIRLS 2016.

Mathematics



Source: TIMSS 2019.

Science

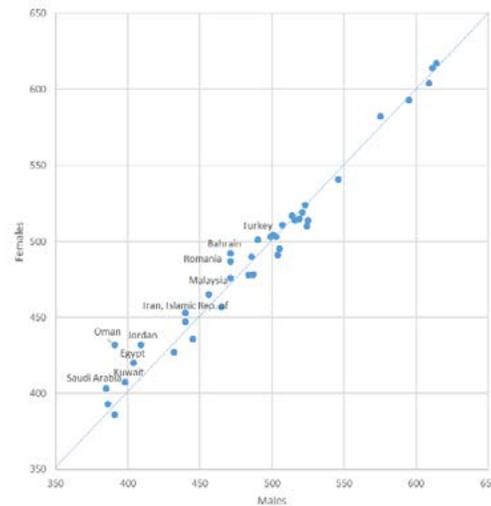


Source: TIMSS 2019.

GRADE 8

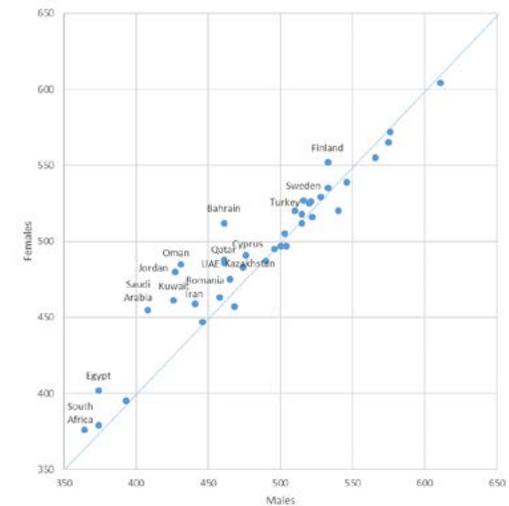
n/a

Mathematics



Source: TIMSS 2019.

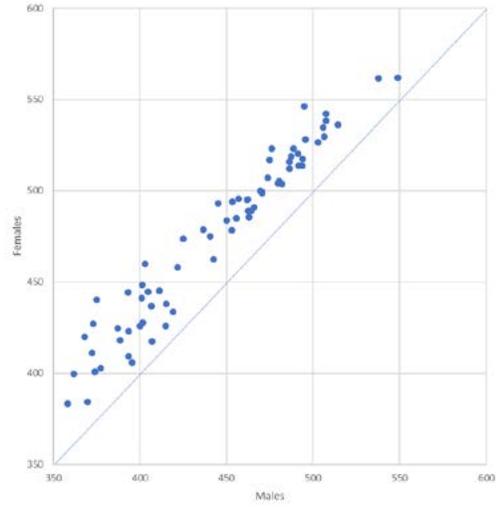
Science



Source: TIMSS 2019.

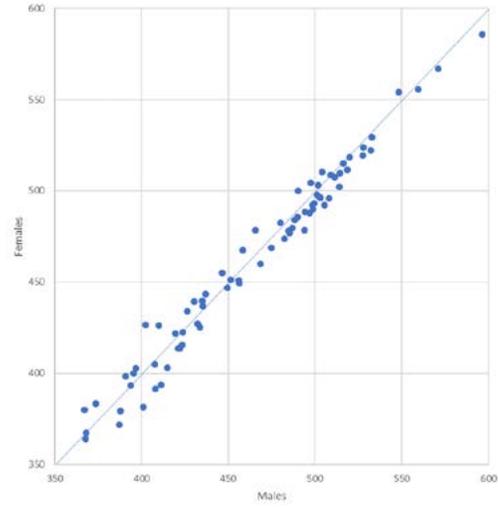
15-YEAR-OLDS

Reading



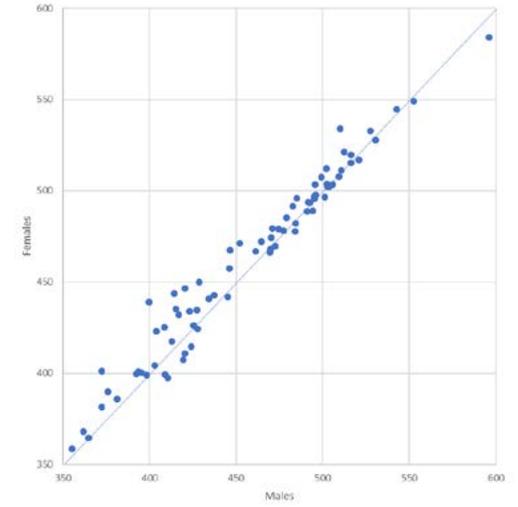
Source: PISA 2018.

Mathematics



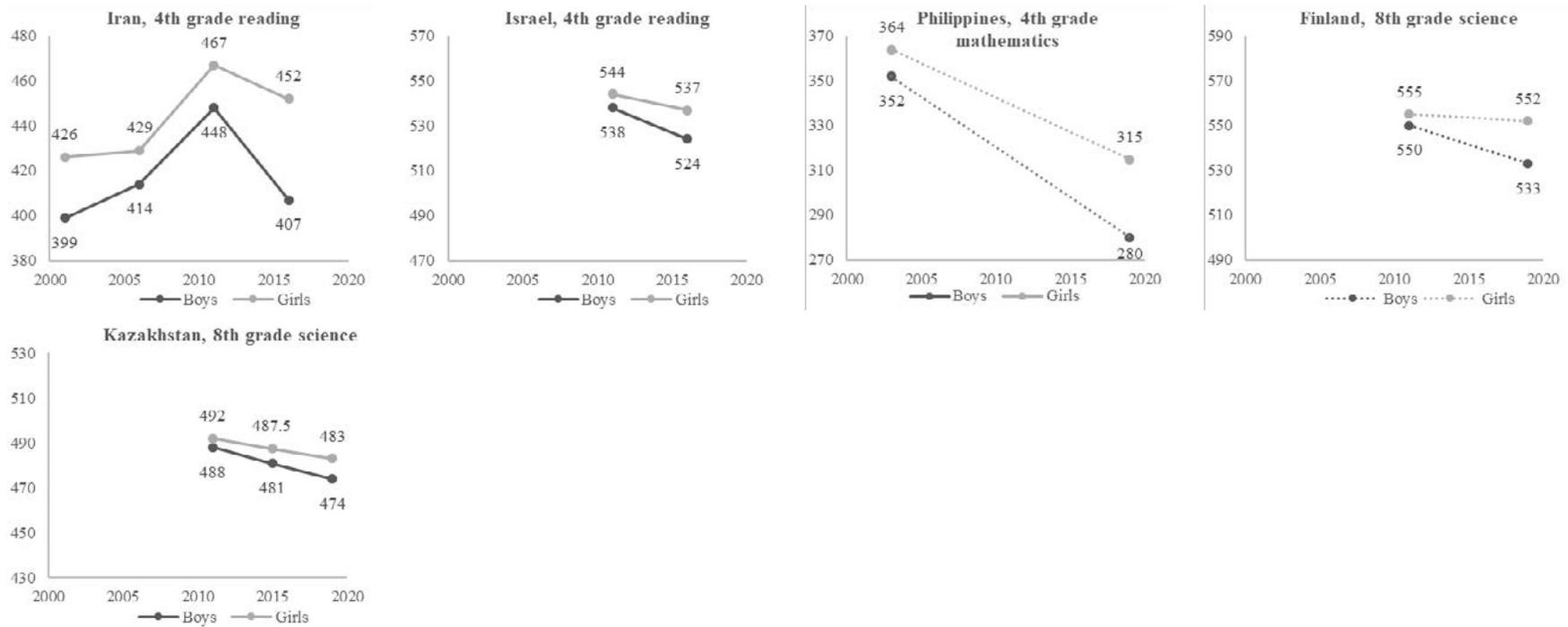
Source: PISA 2018.

Science



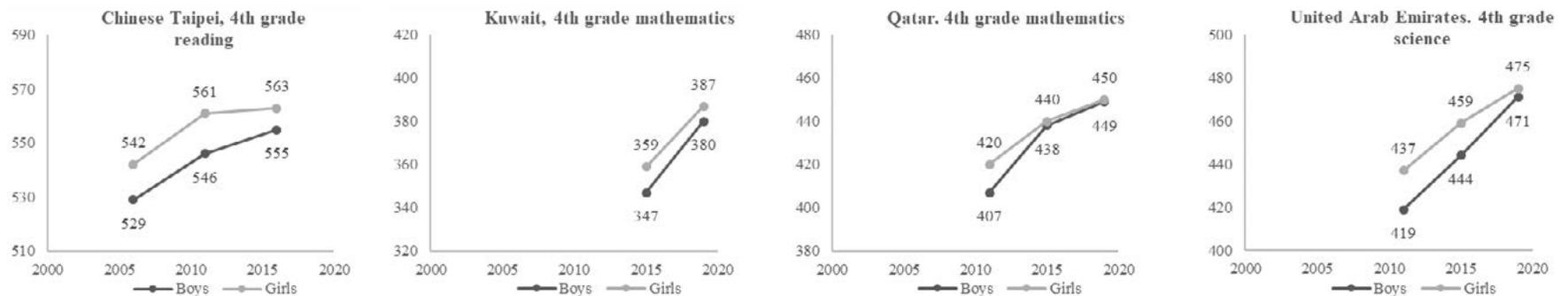
Source: PISA 2018.

Figure 2.9 Selected countries in which boys' achievement is dropping or the gap between girls and boys is increasing, PIRLS and TIMSS



Source: Based on data from IEA: <https://timssandpirls.bc.edu/>.

Figure 2.10 Selected countries in which boys' achievement has increased faster than girls' (reducing the gap), PIRLS and TIMSS



Source: Based on data from IEA <https://timssandpirls.bc.edu/>.

The above trends are a snapshot of the same grade over different years. It is also of interest to understand how gender differences change within a cohort of students as they progress through their education. Since TIMSS assesses grades 4 and 8 every four years, it is possible to compare the national averages of the same cohort across those two grades for the countries that participated in both grades in both years. This is shown for science in figure 2.11. While this also shows a wide range of circumstances, in most countries the gender gaps in grade 4 persist into grade 8 for the same cohort of students.

Figure 2.11 Science: Relative achievement of 2015 grade 4 students as grade 8 students in 2019

Countries assessed in both grades in both assessment years

Boys scored lower than girls in grades 4 and 8	Saudi Arabia	Boys scored around the same as girls in grades 4 and 8	Georgia	Boys scored around the same as girls in grade 4 but higher in grade 8	Chile Japan		
	Bahrain		New Zealand				
	Oman		Lithuania				
	Kuwait		Turkey				
	Qatar		Australia				
	United Arab Emirates		England				
	Finland		Norway			Boys scored higher than girls in grade 4 but around the same in grade 8	Chinese Taipei
	Sweden		Singapore				Hong Kong SAR
	Kazakhstan		Russian Federation				United States
			France				
Boys scored lower than girls in grade 4 but around the same in grade 8	Morocco		Boys scored higher than girls in grades 4 and 8	Portugal			
				Hungary			
Boys scored around the same as girls in grade 4 but lower in grade 8	Iran			Italy			
	Cyprus			Korea, Rep. of			

Source: Based on data from IEA <https://timssandpirls.bc.edu/>.

Economic and social disadvantage plays a role in boys who are at risk of struggling with reading. In a panel study in the United States, it was found that among disadvantaged children (based on qualifying for meal subsidies), boys had poorer early reading skills, while among non-disadvantaged children, boys' and girls' early reading skills were similar (Entwisle, Alexander, and Olson 2007). The transition in first grade was found to be a critical point within this longitudinal study in terms of boys' reading development.

Remedial reading and learning disability classes tend to have an overrepresentation of boys (Brozo 2019). In addition, boys tend to be held back in a grade more often than girls, which is a concern not least because, along with school suspension, grade retention is known to be a contributor to early school leaving and worse, the “school-to-prison pipeline” (Brozo 2019).

In the 2012 PISA assessment of problem-solving skills, boys scored higher than girls in most countries. However, when collaborative problem solving (a critical 21st century skill) was assessed in PISA 2015, girls outperformed boys in every country, with the relative size of the gender gap being larger than it was for reading (OECD 2017b). The largest gaps (over 40 points) were found in Australia, Finland, Latvia, New Zealand, and Sweden. Boys were found to recognize the instrumental benefits of teamwork and how it can help them work more effectively and efficiently; however, they had less positive attitudes toward relationships than girls, and were less interested in others’ opinions or wanting others to succeed. This ability to listen to others and take their viewpoints into account was mirrored in the 2018 PISA module on global interconnectedness, which found that boys in all countries except the Dominican Republic reported less of a capacity than girls to consider the perspective of others (OECD 2020).

International comparative data on learning outcomes for tertiary education is scarce. Although, as discussed above, some information exists on graduation and the completion of tertiary education, these are poor proxies for actual learning: and many factors enter into a student’s decision to interrupt his or her studies. The fact that more women than men tend to graduate (although this tendency is reversed in the STEM fields) does not fully indicate the depth of knowledge and skills that have been learned. Furthermore, the diversity of tertiary education worldwide makes it particularly difficult to develop methods that measure what students learn in an internationally comparable manner.

The Programme for the International Assessment of Adult Competencies (PIAAC) has found negligible differences in literacy proficiency between men and women, with small differences in favor of men in numeracy (OECD 2019a). The latter differences tend to be more pronounced among older cohorts. Whether this narrowing of the gender gap from school-age international assessments (such as PIRLS, TIMSS, and PISA) to the PIAAC is due to “catching up” of underperforming boys and men, or to cohort effects, whereby women were less engaged in the labor market and completed less education in the past in many countries, is not yet clear.

Distribution of Underachievement Within Countries

Taking a more granular perspective at the country level, it appears that a wide distribution of underachievement can exist, with gender gaps more pronounced among certain groups of students. Bossavie and Kanninen (2018) examined the “gender gap reversal” and found that males tend to have a wider dispersal of education outcomes (with achievement defined as enrollment, completion, or learning levels) than females. Thus, the overall underachievement of males has mainly been due to a clutch of poorly-performing male students who bring down the average score, particularly in lower-income countries. Although there appears to be less, or no underachievement of males at the top of the distribution, this does not appear to have the same impact on the overall mean. Two hypotheses are proposed by Bossavie and Kanninen (2018). First, the “mean hypothesis” suggests that girls’ returns from education are higher than for boys, and this makes them invest more in their own education. Secondly, the “tail hypothesis” suggests that girls’ and boys’ performance is on average the same, but boys’ performance has more variance, including more boys at the lower end of achievement. As such, the fact that a minimum level of performance is needed to complete a schooling level means that the number of boys that have completed that level is lower than that of girls. This “tail hypothesis” has strong explanatory power for the gender gap reversal, particularly in

low and middle-income countries. In high-income countries, the “mean hypothesis” appears to be a more powerful explanation of the gender gap reversal.

Significant geographic heterogeneity of gender disparities in learning outcomes was found in a study of three East African countries: Kenya, Tanzania, and Uganda (Buhl-Wiggers, Jones, and Thornton 2021). Boys’ overall educational underachievement was found in each of these three countries; however, the gap between boys and girls was geographically clustered, and even reversed in some places. The authors concluded that “systematic female disadvantage in schooling is no longer the norm” (Buhl-Wiggers, Jones, and Thornton 2021, 1).

In their analysis of Florida birth certificates matched to school records, Autor et al. (2020) concluded that female advantage in childhood behavioral and academic outcomes is driven by gender gaps at the extremes of the outcome distribution. Their research also indicates that a more disadvantaged family environment disproportionately harms boys’ childhood outcomes, including in disciplinary infractions, standardized test scores, and high school graduation rates. A different scenario is seen in Sri Lanka, where greater gaps are found among more advantaged students (box 2.1).

Box 2.1 Gender gaps in Sri Lanka

In 2018, the World Bank prepared a discussion paper on gender gaps in Sri Lanka; this paper notes that male underachievement has emerged and widened significantly at the upper secondary level, and continues into the tertiary level. Sri Lanka is an example of a middle-income country in which boys are less likely to transition to the next level of education, and are more likely to drop out than girls, particularly at higher levels of the education system. A clear pattern exists in gender disparity among different socioeconomic groups, although the pattern is the opposite of the one found in other countries. Male underachievement compared to females is greatest among the wealthiest segments of the population at every level of the education system. Females in the wealthiest quintile have a greater advantage over their male counterparts than females in the poorest quintile.

Disparities exist on all national measures of educational achievement. According to the results of the grade 5 examination over a four-year period (2011–2014), the percentage of high performers has increased among both girls and boys. However, girls have consistently outperformed boys. Girls also outperform boys at the lower secondary and higher secondary level. In 2011, 66 percent of girls, compared to only 50 percent of boys qualified for the G.C.E A-level examinations, and girls continue to outperform boys at the higher secondary level. Here again, girls significantly outperformed boys, with 67 percent of the girls compared to 51 percent of the boys qualifying for admission to universities in 2014.

Source: World Bank 2018.

Within countries, the gender gaps tend to be greatest among those students who do not reach basic proficiency levels; and it is predominantly boys who are not reaching this basic level. The gender gaps are less pronounced among those students who have reached high levels of proficiency; here

it is more of a mixture across countries of boys or girls being more likely to have reached these high levels. For example, an analysis of the TIMSS 2019 and PIRLS 2016 data, in which the difference between the percentage of boys and girls who were (1) below the low international benchmark; and (2) at or above the high international benchmark, is shown in appendix A, figure 1. For grade 4 reading and science and grade 8 mathematics and science, the gender gaps within countries were greatest between boys and girls who were below the low international benchmark, with boys more likely to be in this group of low performers. At the high end of performance, the gender gaps were more mixed across countries, with boys performing better in some countries and girls performing better in others. The only exception to this is in grade 4 mathematics, where both extremes occurred: countries were more likely to have boys performing below the low international benchmark than girls, while they were also more likely to have boys performing at or above the high international benchmark (appendix A, figure 1B).

As countries become richer, they tend to depend more on their human capital. If boys tend to fall behind as countries are expanding their access to education, and moving from low to middle-income levels, there are likely consequences for social and economic development. Not all boys are underachieving, and the size of the difference is not always substantial. While boys are overrepresented at the lower ends of achievement, there are also girls in these groups who are struggling. Nevertheless, the findings on educational underachievement among boys and men have important implications for policymakers and educators. The next section explores the factors that have been found, or are assumed, to explain or impact educational underachievement among boys and men.

3. What Explains Educational Underachievement Among Boys and Men?

A review of literature from the United States (where the most research on this topic has been conducted) and elsewhere shows three overlapping explanations for educational underachievement among boys and men: (1) labor market characteristics that contribute to the decision to underachieve; (2) social norms that might encourage or reinforce underachievement; and (3) characteristics of educational processes (teaching and learning) that may unintentionally promote underachievement.

The factor of disadvantage is woven through all of the explanations of educational underachievement among boys and men. Invariably, the literature indicates that boys and men are particularly vulnerable to underachievement when they are poor; members of certain races or ethnicities; and/or of the lower social classes. Disadvantage, however it is defined, affects both girls and boys. All children and young adults suffer when they are victims of racism and other forms of discrimination, regardless of gender. It can be argued that focusing on boys rather than using the lenses of privilege and disadvantage distracts from locating the most fundamental factors that are contributing to underachievement more generally, whether for boys or girls. However, the literature emphasizes that boys who are disadvantaged tend to experience more educational underachievement than girls.

Labor Market Patterns

Male educational underachievement at the secondary school and university levels has sometimes been accompanied by relative changes in labor market access and earnings for men and women. For the United States, Autor and Wasserman (2013) note that “over the last three decades, the labor market trajectory of males in the United States has turned downward along four dimensions: skills acquisition; employment rates; occupational stature; and real wage levels” (7). They also assert that changes in the US labor market resulting from certain global trends have contributed to an increased demand for workers with higher education relative to those with lower levels of schooling. First, the US labor market and that of other higher income countries have demanded higher levels of skills. Second, labor unions, which had successfully protected and obtained relatively generous incomes for blue-collar workers (who had not needed higher levels of education) have been in decline. Finally, the globalization of labor markets has had a particularly negative effect on demand for low skills in the labor market of richer countries.

Two consequences have arisen from these changes in the US labor market (Autor and Wasserman 2013). First, men’s wages have declined, particularly for the youngest and the least-educated, and wages have grown for women, particularly for those with four-year degrees. Second, occupational stature has changed for both men and women. Both men and women have moved out of blue-collar and clerical jobs. However, men, particularly less educated men, have shifted toward service jobs (which have lower pay and job security) while women have shifted toward higher-skilled jobs. Given the changing wage structure and an increasing polarization of the labor market, the underachievement of boys is expected to have larger impacts on their labor market outcomes compared to a couple of decades ago. As Cortes (2016) found, the workers who are hardest hit in the long run by the effects

of technological change are those who stay in routine jobs rather than those who switch to more nonroutine occupations that require more education.

Relative levels of education could have contributed to these trends, which occurred at the same time as the gender gap reversed in higher education in the United States. Starting with the cohorts born around 1960, the proportion of women with four-year degrees started to outpace that of men.

However, Autor and Wasserman (2013) stress that, although the earnings gender gap in the labor market has narrowed in the United States, there has been no reversal. “Among young four-year college graduates, males earn an average of \$24.30 per hour versus \$20.50 among females. Among 25 to 39-year-old high school graduates with no college attendance, males averaged \$14.70 per hour in 2010 versus \$11.90 among females” (Autor and Wasserman 2013, 26). Furthermore, the top of the education achievement pyramid and income bands are mostly populated by men.

These rapidly developing trends in the labor market have fed into a dynamic that was already underway. Women who have attended college—and they already did so in increasing numbers by the 1960s—have benefited more from the changing labor market than men who were traditionally employed in professions that required lower educational levels. Essentially, men’s education performance has not yet “caught up” with the changes in the labor market, whereas women were more ready to take advantage of these new opportunities.⁶

However, men’s behavior has not changed in the expected direction. Male enrollment in tertiary education is not growing, even though “the economic case for the four-year college degree for young US adults—both male and female—has probably never been stronger. Seen in this light, the flagging college attainment of US males is all the more puzzling” (Autor and Wasserman 2013, 26).

Several explanations have been put forward for this counterintuitive trend. One is that males do not have enough information on the returns for furthering their education. For example, Jensen (2010) found that eighth-grade boys in the Dominican Republic believed that the returns from secondary education were extremely low compared to the actual returns. Another possibility is that because it takes time to build up enough human capital to be competitive in the labor market, there are few immediate opportunities to reverse any ill fortune in the development of human capital. Boys who fall behind during the earlier grades are simply not able to “catch up” and build the expertise needed by the time they are of working age and therefore leave school. Efforts to address this phenomenon through orienting youth to vocational training are often inadequate, because it is commonly viewed as an inferior form of education. Another possibility is that it may not be a lack of information that is preventing youth from obtaining further education, but the lack of effective remedial opportunities (Brozo 2019).

The need for immediate employment can create pressures that undermine the potential benefits of education. Many can simply not afford to wait to finish their studies and reap the evident benefit of greater employment opportunities. As discussed below, there might be greater pressure on men than women to engage in income-generating activities at the ages where secondary or tertiary education are generally available. For example, in the countryside in Sri Lanka, the opportunities in Colombo for immediate revenue-generating activities contribute to endemic male drop out and migration (World Bank 2018b).

It is important to note that the opportunity to quickly earn revenue that may lead young men to quit school includes criminal activity—for example, selling illicit drugs. In many Central American and Caribbean countries, for example, the returns from criminal activity are quite high, and thus

6 However, as previously noted, men still outnumber women enrolled in STEM fields at the university level; but the gap is narrowing.

the opportunity cost of staying in school (particularly since there are few available legitimate job opportunities) is low in comparison. Criminal activity is of course strongly associated with violence. Thus, the opportunity cost of staying in school is evidently very high if young men decide that it would be better to take on illegal activities and incur the associated risks.

In some countries, such as those in the GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), some employers meet their skilled workforce needs by hiring expatriates. Although governments in the region are pursuing nationalization policies, there remain few incentives for nationals to compete for these positions. An additional explanation is that some countries, including many in MENA, have traditionally favored men for guaranteed public sector employment. This may dampen the demand for boys and men to pursue higher levels of education, because it is not required for a successful career (World Bank 2019). However, not all countries can afford guaranteed public employment: this factor may have become progressively less influential in the GCC region.

In many economies, there are simply not enough quality jobs that require skilled labor. Furthermore, when jobs in the formal economy are available, access to these jobs is not determined by education alone. In Egypt, for example, Assaad (2017) indicates that secondary education no longer provides access to formal employment, as was the case in the past. Rather, it mostly leads to employment in the informal sector, family businesses, or agriculture. Since an increasing proportion of women continue their studies after secondary education, this has had the greatest impact on men.

Commensurate labor market opportunities are not always present for women either, although they still attend university in record numbers. Female labor market participation rates are the lowest in the world in the MENA region, even while the gender gap in favor of females' participation in and completion of higher education there is the highest globally (World Bank 2019). It is easier for men to find jobs because of powerful social norms, and sometimes explicit policies that prevent women from entering or competing on equal footing in the labor market (Autor and Wasserman 2013). Here, the need for boys to invest in more education is possibly diminished. For example, in some GCC countries, only men can teach boys and only women can teach girls in schools. Given the lack of male teachers, especially in certain subject areas, GCC countries have resorted to importing male teachers from other Arab countries, despite there being plenty of qualified women ready to take on the job (Ridge 2014). Hence, there is another puzzle at play, whereby women have relatively higher access to education, but lower access to gainful employment. Under these circumstances, and from a labor market perspective, why do girls stay in school?

One theory is that the changing marriage market has influenced women's choices to pursue higher education, whereas the same market forces have diminished the interest of men in pursuing further schooling (Greenwood et al. 2014). Delaying marriage and investing more in education may be a rational choice for women in situations where men of equal educational status are unemployed, and so assortative trends thus change. In Egypt, for instance, women who pursue higher education often marry men who have a higher socioeconomic status, defined generally by their education level (Assaad 2017).

Social Norms

Considerable research has been undertaken on social norms as a key factor leading to educational underachievement among boys and men. Commonly held beliefs about the role of schooling in the lives of males and females have a profound effect on how youth engage in education. These norms are sustained by the family, the community, and institutions such as schools, among others, and they influence the performance of youth at school (Jha et al. 2017).

Much research on the effect of social norms has focused on the concept of “hegemonic masculinity” and how different definitions influence the choices made by boys and men when it comes to education (Jha and Kelleher 2006; Jha et al. 2017; Brozo 2019; Levto and Spindler forthcoming). “Hegemonic masculinity” encompasses a set of social norms (for example, emphasizing sexuality, physical strength, and social dominance) that can be at odds with those that are conducive to academic success. Specific behaviors associated with school are sometimes considered effeminate—for example reading, and other seemingly passive activities that are key to a successful academic experience. The strength of these norms is often shaped by the importance of membership in groups that accentuate them. When social stereotypes for males emphasize behaviors and priorities that diminish the importance of education, there are strong peer and other community pressures to underestimate the importance and value of education. Those who do not do so may be considered less masculine. This research also examines why boys engage in violent and other risky behavior more than girls (Brozo 2019).

One variation of this concept is that boys’ behavior in school can be motivated by masculinity identity characteristics that in turn lead to academic failure: characteristics such as disruption, resisting authority, and assuming a “cool pose” in school (Jha et al. 2017). This is sometimes referred to as “laddish” behavior. These comportments in schools and in classrooms can undermine the academic experience of boys and lead to underachievement. One example of the power of social norms in shaping educational achievement comes from the Caribbean, as described in box 3.1.

Box 3.1 The Caribbean and the Man Box: The power of social norms in shaping educational achievement

The educational systems in many Caribbean countries have reached gender parity in enrollment at the primary and lower secondary levels, but they start to diverge significantly at the upper secondary and tertiary levels. In many cases, boys’ dropout rates are much higher than girls’ at the secondary level, and the performance of girls and boys differs substantially on the Caribbean Secondary Education Certificate examinations, which are a prerequisite to university. In 2000, twice as many women as men (202.5 women per 100 men) were enrolled in higher education.

Among the contributing factors to the educational underachievement of boys and men in Caribbean countries, notions of masculinity play an important role. The InterAmerican Bank, with Promundo, an organization that is dedicated to promoting positive images of manhood, conducted a “Man Box” study in Jamaica, which explored the set of personal beliefs that place pressure on men to behave in certain ways that, among other results, works against educational success. The Man Box study explored the set of personal beliefs as communicated by parents, families, the media, peers, and other members of society, that place pressure on men to behave a certain way. As a concept, the Man Box aims to measure how young men encounter external social messages and subsequently internalize them. It consists of seven pillars: (1) notions of self-sufficiency rather than cooperation; (2) “acting tough”; (3) rigid masculine gender roles; (4) heterosexuality and homophobia; (5) hypersexuality; (6) aggression and control; and (7) dismissal of the importance of education for work. The higher the score, the more “masculine” their perceptions, with those scoring high being described as being “in the Man Box.”

The study found that there was a strong relationship between those who scored high

on the Man Box scale and negative attitudes regarding education. For example, these participants tended to believe that higher education would not lead to promising careers “without having money or connections” (28). Men with lower educational attainment, who had unstable occupations, and who were inside the Man Box were all more likely to feel that social pressure strongly influenced the way they defined masculinity. Without the economic ability to pursue tertiary education, many resort to “low-hanging fruit” such as participation in gangs and a life of crime to bolster their sense of manhood and to create the illusion of being in control. Young men inside the Man Box are likely to have completed fewer years of education, while men outside the Man Box were more likely to have completed tertiary education and less likely to have studied only up to secondary school. Men outside the Man Box were also more likely to have obtained a Caribbean Secondary Education Certificate.

Regardless of the differences in education outcomes and the role that the Man Box may play, labor market opportunities in Jamaica tend to favor men. Men continue to earn more than women, even for similar work. Generally, Jamaican youth unemployment levels are relatively high, with young women having higher unemployment rates than men (35 percent versus 24 percent). In other words, “schooling is perceived as a matter for girls and young women, and work as a more appropriate space for boys and young men” (13). An important caveat to this finding is that men without education find jobs in unstable occupations, such as in the informal sector. As a result, a substantial number of them lack the necessary skills to improve their socioeconomic status and sustain economic development in the region.

It is important to note that social norms are not the only reason why boys do poorly at school. The Man Box study also points to the lack of financial and social support as a key reason for terminating studies.

Source: Levto and Spindler (forthcoming).

The Sri Lanka study discussed in box 2.1 conducted focus groups on educational underachievement among boys and men that included students, teachers, and parents. Through these groups, several key norms that contribute to a lower level of academic success were confirmed. One finding is that students and parents both thought that boys did not have to work as hard to achieve the same results as girls (teachers did not agree). This belief led to less parental oversight of boys’ academic activities such as homework, or examination results. Furthermore, boys felt that pursuing senior secondary education was not important to them due to masculine norms. It is of course also important to understand and address limiting attitudes and behaviors of girls that lead them to forego employment after graduating from secondary education, opting instead to stay at home and continue their studies. UNGEI/EAP finds similar trends in other countries in Asia (2012).

Among the theories on how family affects social norms, much has been written about “fatherless” households, particularly those that are poorer or otherwise disadvantaged. In such cases, in the US literature, boys tend to experience more educational underachievement, and girls’ educational performance is unaffected (or is affected significantly less). This may reflect the absence of male role models for boys in contrast to the presence of female role models (single mothers) for girls.⁷ As

7 Single parent households in the United States and in most other countries are overwhelmingly headed by women.

Autor and Wasserman (2013, 44) note, “the diminished involvement of the related male parent may magnify the emerging gender gap in educational attainment and labor market outcomes.” Doherty et al. (2015) indicate that the impact of the absence of a father may endure through college. Lundberg (2017) also found that fathers’ absence does lead to boys having more problems in school, although the effects might not last until university.

The international literature is not necessarily aligned in this regard. In Denmark, although the influence of family background on educational achievement is similar to that of the United States, gender differences are weaker when examining adult outcomes. “Paternal education has some significant, though smaller, effects on the gender education that favor sons (and that decline over time) but has larger positive effects on the employment and earnings of daughters,” according to Brenøe and Lundberg (2017, 3). In a comparison of China, Japan, and the United States, Akabayasi et al. (2020) found that, although low household income tends to have more adverse effects on language test scores for boys than for girls in the United States, it does not have an impact on the gender gap in test scores in China, and tends to affect girls more adversely than boys in Japan. In Latin America and the Caribbean, there is no discernible difference in gender education performance between girls and boys as a result of father absence in poorer households (DeRose, Huarcaya, and Salazar-Arango 2018).

Even when he is present the father may not play a particularly strong role in ensuring the engagement of children (particularly boys) in the school experience, unless his educational level is relatively high. Diprete and Buchmann (2012) note that having a father in the home who has some college education contributes to high levels of male college completion. This speaks to a possible intergenerational effect.

Fathers can have an important role to play in children’s literacy development (Clark 2009), especially by modeling reading so boys associate reading and literacy activities with men, given that early years and primary school teachers are predominantly women and mothers tend to read more to children than fathers (Schwanenflugel and Knapp 2019).

In terms of cultural factors that affect fathers’ involvement in education, historically in the Middle East, the mother has been viewed as being responsible for the upbringing and education of her children, at least until adolescence. In contrast, fathers in the region are expected to be material providers for their families, and this requirement is enshrined in the legal codes of most MENA countries (Ridge et al. 2018). In addition to this, there is a prevalence of gender segregation at the school level for both students and teachers in schools, especially in the GCC countries (Ridge 2009). This has resulted in schools becoming gender-segregated spaces that exclude the opposite-sex parent from a son’s or daughter’s education.

The school can facilitate and encourage parental involvement, or it can be an unwelcoming place for parents (Jha et al. 2017). The current situation of emergency distance education due to the COVID-19 pandemic seems to be increasing the involvement, or at least understanding, of parents in their children’s education, though this is likely an uneven phenomenon across and within countries, and between mothers and fathers.

Teachers are the most important people in the lives of students at school, and thus they often constitute strong vectors for the transmittal of norms, whether they be “pro-academic” or not, and whether they differentiate between boys, girls, and/or other discriminating characteristics. For example, teachers and school authorities may expect that boys will “act out,” particularly boys from particular socioeconomic groups, ethnicities, or races. This can become a self-fulfilling prophecy in that teachers may discipline boys differently, or may merely accept as “normal” such behavior.

Furthermore, schools may not encourage boys who do not show interest in academics. Some research in Jamaica has shown that boys who are interested in academics are not supported by the school system, and are influenced by the expectations of the hegemonic masculine discourse, and thus are less likely to succeed academically (Levtov and Spindler forthcoming). Teacher expectations can also reinforce gendered behavior in the classroom, hindering performance. “Laddish” behavior is not only reinforced by community and peer groups, but by the expectations of the school systems themselves, which can also perpetuate hegemonic masculinity norms.

As Jha and Pouezevara (2016) noted, “Gender stereotypes, gendered socialization, and gendered expectations both at home and in school are considered to be the main reasons for observed patterns of underachievement to have emerged and be sustained so consistently across different contexts. ... Accordingly, parents expect girls to behave and study, while “boys will be boys,” and teachers’ expectations are also shaped by these stereotypes” (37).

The social norm landscape is inhabited by a variety of social influences. Within the same community, there can be norms that promote the education of boys as well as girls, in addition to those that diminish its importance. Various actors communicate a panoply of norms, some of which are positively associated with academic success. None of these are unitary entities, and there are often “mixed messages.”

Generally, it appears that the gender gap in educational attainment partly results from greater sensitivity of boys to difficulties in the home, and childhood disadvantage. Even if not specifically focused on boys, the greater sensitivity of boys to disadvantage implies that programs targeted at disadvantaged students may reduce gender gaps (Delaney and Devereux 2021).

Learning, Teaching, and Characteristics of Education Systems

Differences in the ways boys and girls learn—their “learning styles”—and the need to match instruction to learning styles has been a common belief, but it is one that is not based on evidence. In fact, a systematic review of research into the belief in, and use of, learning styles among educators found that there is a substantial body of literature identifying learning styles as a neuromyth or “urban legend” but that support for the belief in matching instruction to learning styles remains high (Newton and Salvi 2020).

A more useful way to examine differences between students in their learning practices and outcomes (for both boys and girls) is to explore what they bring to their schooling experience—their prior knowledge and skills—both cognitive and noncognitive (including social skills and behaviors)—as well as their engagement in the learning process. This is because learning takes place when the level of instruction is aligned with the goals for learning and the students’ prior knowledge and skills, as well as their interests and attention.

As children enter formal education, DiPrete and Jennings (2012) found that boys begin with less-developed social and behavioral skills, and that this can explain gender differences in early academic outcomes. A review of the literature by Delaney and Devereux (2021) found some differences in average noncognitive skills between males and females, and some of those are related to educational achievement; but they also found that there is strong evidence to suggest that these skills are malleable and dependent on the environment.

Boys are often believed to be less motivated than girls to achieve at school, although there is little and mixed evidence of this. The 2015 PISA assessment found that 15-year-old boys were less likely than girls to report that they want top grades at school, less likely to be anxious about their grades,

and less likely to report that they expect to complete university. However, boys were more likely than girls to report that they are ambitious or competitive (OECD 2017a). A study of Australian secondary schools found that girls were higher in learning focus, planning, study management, and persistence, while boys were higher in self-sabotage or self-handicapping, which can stem from low control over outcomes (Martin 2004). However, the effect sizes were small, and the differences were a matter of *degree* and not of *kind* of motivation, suggesting that programs to address motivation need not be markedly different for boys and girls. A fear of failure was expressed less often by boys than girls in almost every education system that participated in PISA 2018 (OECD 2019b).

As noted in the previous section, boys are often behind girls in the early grades of schooling, particularly in reading. In addition to prior knowledge, skills, and behaviors, at least five classroom elements interact to impact a student's engagement in the learning process: the learning environment; the curriculum; assessment; instruction; and classroom leadership and management (Tomlinson and Moon 2013). Each of these can either support or deter learning, and need to be examined in the context of boys' underperformance. With the significant underperformance of boys compared to girls in many countries across the world, particularly in MENA and EAP countries, it is clear that education systems in these cases are not meeting the needs of large groups of boys. In many of the countries with the most extreme cases (such as the GCC countries), the education systems may still be in a relatively early stage, having expanded access to education to near universal levels in just the last 50 years; but they are still at a developmental stage in terms of preparing a cadre of teachers with the skills to move beyond mere curriculum delivery to engaging students, assessing for understanding, and employing effective pedagogies to meet students' needs.

A four-year project looking into issues associated with the different academic achievement of boys and girls in England found that there was no support for the idea of a case for boy-friendly pedagogies. "Pedagogies which appeal to and engage boys are equally girl-friendly. They characterize quality teaching, and as such are just as suitable and desirable for girls as for boys" (Younger and Warrington 2006, 15). Engaging and motivating students in their learning requires attention to their background, interests, knowledge, and skills, regardless of gender. There is greater diversity in these characteristics within genders than between them. However, the degree to which education systems give attention to student engagement and motivation, especially among the lower achievers, is likely to be related to the strength of learning outcomes for boys and girls overall. This includes the school and classroom climate—that is, the social, physical, and academic characteristics of schools and classrooms.

A classroom that is conducive to learning has noise and disorder kept at acceptable levels; students listen to their teachers and to each other; and they are able to concentrate on their schoolwork. OECD PISA results have consistently shown a positive association between students' perception of the classroom disciplinary climate and academic performance, even after accounting for socioeconomic status (OECD 2019b). On average, student reports of the disciplinary climate in PISA 2018 were found to be more positive in schools with mostly girls (more than 60 percent) and in gender-balanced schools than in schools in which boys made up more than 60 percent. Only two OECD countries had worse disciplinary climates in gender-balanced schools than in single-sex schools: Australia and the Dominican Republic.

Unlike most countries, several with the greatest underperformance of boys tend to educate large numbers of boys and girls separately. Some of these countries start with single-sex education from the earliest grades of primary school. In the country with the biggest gender differences in learning outcomes—Saudi Arabia—from grade 1, boys are taught by men and girls are taught by women. Conversely, the Philippines also has large gender differences in learning outcomes, but gender segregation in primary school is rare.

Research findings are mixed on the effects of same-gender teachers (Delaney and Devereux 2021). On single-sex schooling, there is some evidence of benefits for girls and less for boys; however, the context is likely to make a significant difference. Whether the all-boys' school is in an advanced education system with highly skilled teachers, or a developing education system with unskilled and unqualified teachers would likely impact this relationship. In countries where boys and girls are taught separately, classroom climates can differ markedly, though there is limited research to document these differences. Some harsh and harmful practices have been described in all-boys' schools in MENA countries (Ridge 2014).

Data sources such as TIMSS give some indication of the ways in which all-girls' schools have environments that are more conducive to learning. For example, in most MENA countries (where single-sex education is common), the principals of all-girls' secondary schools rated their school's academic emphasis higher than did those of all-boys' school principals (appendix A, figure 2). The teachers in most of MENA's all-girl schools were also deemed better at explaining content and guiding students in their learning than teachers in all-boys' schools, according to grade 8 science students (appendix A, figure 3). In addition, MENA's all-boys' schools have higher reports of bullying than all-girls' schools (appendix A, figure 4). Overall, all-girls' schools in the MENA region create an atmosphere that makes more girls feel a sense of belonging in school than boys, and this is the case across all of the countries in the region that have significant gender segregation of schooling (appendix A, figure 5).

These findings align with those of an interdisciplinary project undertaken in Oman between 2011 and 2014 to study the gender gap in student performance and its implications—a study titled “The Male Dilemma.” The study found many factors contributing to boys' lower academic performance, including that all-girls' schools had more learning materials, greater student participation, and better student attentiveness in class (Osman et al. 2014). Female teachers in all-girls' schools were found to provide more assistance and feedback to students, and to allow more creativity and expression of ideas than male teachers in the all-boys' schools. As mentioned above, there is a shortage of male teachers in certain subjects in the GCC, and of men interested in going into the teaching profession. This creates the need to “import” teachers from countries in which teacher training standards may be lacking, leading to a cycle of poor-quality education in boys' schools (Ridge 2010).

Similarly, according to an unpublished USAID report (quoted in Ripley 2017), a study observing classrooms in Jordan found male teachers in all-boys' schools reacting to students' incorrect answers with belittling, or punishment. Complaints of teachers shouting at and beating students were greater among boys than girls. Aside from being a serious child welfare concern, the lack of classroom behavior management skills shown by male teachers in these examples is likely resulting in lost time for learning, and an atmosphere that stifles the risk taking and creativity needed for full engagement in class.

The evidence on differences in MENA all-boys' and all-girls' schools, combined with the large gender differences in student learning outcomes found in many of the MENA countries, indicates that creating a positive environment for learning in boys' schools is essential. It is also urgent, given that research has found boys to be more affected by school quality than girls, more harmed by bad schools, and able to gain more from strong schools (Autor et al. 2016). This finding is confirmed by a recent OECD study, which found that boys appear to be more affected by learning conditions, and more disturbed by classroom disciplinary problems and school organizational issues than girls are (box 3.2). This is a particularly interesting finding in light of the discussion above that boys are more sensitive to external environmental constraints (such as disadvantage), which has an effect on their learning.

Box 3.2 The effect of classroom climate and practices on boys' learning

By combining the 2018 Progress in International Student Assessment (PISA) and the 2018 Teaching and Learning International Survey (TALIS), an OECD study used AI-powered supervised statistical learning to search for links between teacher characteristics and conditions in schools and classrooms, and student PISA performance, as well as their views on related issues. The study confirmed that teachers and schools make an important difference in student outcomes.

Specifically, the study found that disciplinary problems in the classroom have more of an impact on boys' performance than they do for girls. Boys were found to be more disturbed by classroom disciplinary problems than girls. The greater the disciplinary problems, the greater the gap in performance. Boys appear to be less able than girls to stay focused on their schoolwork when disruptions occur. Measures that indicated a potential for improving boys' performance included greater involvement and support from parents in school-related activities, and having positive relationships with teachers and students. This points to issues of self-regulation, and focus on achievement, to which schools and parents can positively contribute.

The study also found that a school culture of student assessment, teacher accountability, and appraisal can help boys to perform as well (or better) than girls in reading. More regular testing may help boys to focus and self-regulate, although an alternative (and well documented) theory of girls performing more poorly due to test anxiety and competition may explain this finding. Overall, where teachers had more opportunity to reflect on their teaching practice, and how well they are supporting low—and middle—achievers (where boys are overrepresented for reading), the better boys performed.

Source: OECD 2021.

Some studies have found that it is not the sex of the teacher, but the teacher's degree of gender sensitivity and other competencies that influence their ability to engage boys and girls in learning (Page and Jha 2009). Teachers' views on student gender and their expectations for boys and girls can play an important part in this regard. Bias against boys has been observed in scores from blind tests of written examinations (Delaney and Devereux 2021). These biases may extend to teachers treating boys and girls differently in class. Teachers' views on gender more broadly may also impact the classroom experience for boys and girls. For example, a study in Turkish schools found that girls randomly assigned to classes taught by teachers with traditional views on gender roles performed less well (particularly with longer exposure), while boys were not affected (Alan et al. 2018).

Teachers play a crucial role in creating positive classroom environments and in implementing effective teaching and learning approaches. Countries with significant problems of boys' underperformance should look to start with the place in which teachers learn these skills—in preservice teacher education, and in-service teacher professional development. In addition, the broad social perception of teaching as a profession may have gender associations that need to be addressed; for example, Ridge (2014) has found that men in the MENA region tend to have a poor perception of the teaching profession, which may be influencing the low learning outcomes witnessed among boys' schools. Where cases of

harm to children (physical and mental) are raised, teacher standards should be very clear, and teacher behavior monitored.

Since the greatest differences between boys and girls are in reading, and since reading is a gateway for academic success in learning across subjects, as well as in positive engagement in society and adulthood, it warrants particular attention. An analysis of the PISA 2012 results by Brozo et al. (2014) found that students' engagement with reading had the strongest association with reading performance in the five studied countries, including the United States, and that girls had significantly higher levels of engagement in reading than their male peers. In Finland, where boys' underperformance in relation to girls has grown recently, the PISA 2018 results found that 63 percent of boys reported only reading if they must. Overall, across countries there is a downward trend in adolescents reading for pleasure between the 2009 and 2018 rounds of PISA. In 2018, only 24 percent of 15-year-old boys noted reading as one of their favorite hobbies compared to 44 percent of girls; while 75 percent of boys reported less than 30 minutes of reading for pleasure per day compared to 43 percent of girls (Brozo and Sulkunen 2020). Addressing the motivation to read would have long-term benefits for both boys and girls, as would encouraging innovative approaches to reading found in countries across Europe, Asia, and the United States (Brozo et al. 2014).

The explanations for educational underachievement among boys and men outlined here are wide and varied, covering the fields of economics, sociology, and education. "It is a *combination* of socioeconomic background coupled with home and society-related factors on one side and school and teacher related issues on the other, in addition to the prevailing gender socialization and gender stereotypical notions, especially in the context of masculinity that explains the phenomenon of boys' underperformance to a large extent" (Jha et al. 2017, 19-20). In a context where the labor market opportunities for educated youth are low, social norms that underplay academic success are prevalent, and where teaching and learning techniques are unsophisticated, male educational underachievement may often be high.

4. What Has Been Done About Educational Underachievement Among Boys and Men?

Most interventions to achieve gender parity in the education sector have focused on girls' access to and participation in education. National programs exist in most low and lower-middle-income countries to ensure that girls and women have opportunities to fully benefit from the educational system. Many have been quite successful, as seen by the progress that has been made worldwide, although it is evident that much more progress is necessary.

There have been far fewer interventions that address educational underachievement among boys and men. Most of these programs have been implemented in high-income countries such as the United States, the United Kingdom, and European countries. In low- and middle-income countries, a few programs can be found in the MENA region, as well as in Latin America and the Caribbean, some of which will be discussed here.

Furthermore, few countries have adopted a national framework, or systemwide policies and programs to promote the educational achievement of boys and men (Devereux and Delaney 2021). Whereas public discussion of educational underachievement among boys and men may exist, and the press may regularly report on the phenomenon, very few countries have adopted a programmatic approach that could provide a platform for advocacy or the mobilization of resources. Having a national program or a strategic framework could help scale up programs that show promise. They also provide a pulpit for advocacy, and pressure to raise awareness of the extent of the issue within a country and to ensure that decisions are taken based on evidence and supported by data.

In addition, and partly as a consequence, data on educational underachievement among boys and men is rarely detailed enough to track the impact of interventions, or to understand at more refined levels localized trends and causes. Although research on the topic has become richer, the analysis in this report shows that it is difficult to conduct international comparisons outside of those countries that have participated in international assessments.

Using the three “lenses” presented in the previous chapter—labor markets, social norms, and teaching and learning—some of the more common approaches used to address educational underachievement among boys and men are summarized below.

Interventions Related to Education and the Labor Market

As indicated in the previous section, many aspects of the labor market are structural in nature, and thus cannot be easily affected through specific programs. Interventions that account for labor market considerations are generally of three types. First, there are programs that attempt to address the opportunity cost of education that might be contributing to decisions to underinvest in one's education or to drop out of school. These can include scholarships, or conditional cash transfers that are reserved for children at risk of dropping out of the system. Many youth, particularly poor youth, stop their education because they can no longer afford to attend school, or because there is financial pressure to generate an income.

In Lebanon, with support from a World Bank project, cash transfers are provided to at-risk youth, to prevent dropping out at the secondary level (World Bank 2020). The cash transfer is for both boys and girls from extremely poor households, but the trends show that boys' dropout rates are higher than girls' in secondary school. Therefore, the project has a specific indicator for boys' retention in school, although the interventions are not targeted by gender.

Financing for tertiary education is a subject that surpasses the confines of this report. However, there are few programs that focus on making financial aid available specifically to men (there are programs that do so for women).

Quotas are one well-known type of intervention for addressing disadvantage. There are few examples of using this approach to address male underachievement. However, since single-sex universities (or separate branches of universities) are common across the GCC countries, there have been some attempts to differentiate access requirements for students in terms of gender. For example, a 2009 study in Oman found that there was a lower selection cut-off point in the grade 12 examination required for places in some university courses for young men as compared to young women. In engineering, for example, if the same cut-off score was applied to both genders, there would have been 732 young men who were offered places, but who would not have qualified based on their grade 12 examination results, and those places would have gone to women. For science, social studies, and education, the figures would have been 578, 210, and 208, respectively (Sultanate of Oman Ministry of Education and World Bank 2013). Therefore, if quotas by gender were not imposed, the differences between men's and women's enrollment in tertiary education and graduation rates (lower for men than women) would have been larger than they are.

Another common type of intervention is programs that provide more information to students about work opportunities after graduation. The underlying theory of this intervention is that if boys and men were more aware of the returns from schooling, they would be more willing to remain in school. These programs are usually twinned with training for relevant job opportunities.

The third approach is to create special educational paths for boys at the secondary level that lead straight to the labor market. Technical and vocational education and training schools or streams within general schools are typical of this approach. Trades and specialized technical areas are provided to underachieving boys. Although this approach is often attractive to policymakers, much research has shown that when underachieving boys are streamed into trades education, they tend to lack the basic skills needed to succeed. Furthermore, these programs are often viewed as "second class" educational opportunities, and can be under-resourced, further isolating and demotivating poorly achieving students. Youth employment programs are one variation of this approach, although they usually target youth who have already quit school.

Addressing Social Norms

The role of social norms in affecting underachievement among boys and men is complex, as outlined in the previous section. In essence, though, there is common agreement that social norms are a powerful force that influence the degree of commitment and aspirations that are necessary in order to achieve academic success. Notions of masculinity that appear to be in direct contradiction with educational success are a case in point. However, the question here is—how amenable are negative social norms to change?

Many of the efforts to modify the influence of social norms that have a negative impact on educational achievement have focused on the community, which encompasses peers and family, neighbors, and authority figures. These approaches attempt to create a counter-offensive, by supporting a social

network of key actors in the lives of boys and men that promotes norms of educational success. This usually happens through peer groups, clubs, effective parenting programs, and other ways of grouping key actors in boys' lives.

One way to combat reproducing social norms that negatively affect academic success is to focus on supporting the teacher. Because students are often taking their cues from the teachers themselves, teachers are often the best targets for interventions (Jha and Pouezevara 2016). However, counteracting negative gender stereotypes is rarely dealt with in teacher training (Kollmayer et al. 2020). Providing motivational support to students is seen as a key way to reduce gender differences in schools (Kollmayer et al. 2020). When teachers use teaching methods that promote student autonomy and individualization (such as by providing and supporting choice in tasks that fit students' interests and abilities), gender differences in motivation decrease. Lüftenegger et al. (2012) found that gender differences in motivation decreased when teachers fostered aspects of individualization and autonomy in their classrooms. By teaching in this way, teachers are less driven by unconscious gender stereotypes, and more mindful of the individual talents and needs of their students (Kollmayer et al. 2020). A pilot study of a training program for teachers in coeducational secondary schools that required teachers to reflect on their own gender stereotypes, examine their teaching practices, and build related competencies, resulted in teachers seeing gender differences as less unchangeable, and gaining the confidence to motivate all of their students, regardless of gender (Kollmayer et al. 2020).

One common response to boys' underachievement is to identify or assign more male role models to them. These can be community members or teachers. Generally, the argument is they would be able to counter negative gender stereotypes merely by the fact that they are men. However, as discussed in the previous section, without special training and working within an environment that promotes positive masculinity, simply having a male teacher is not enough. Overall, the findings from this literature are mixed. However, Kato and Song (2018) used a similar design in a US liberal arts university to show that having a same-gender advisor does benefit undergraduates in terms of retention and GPA.

One variation of this theme is the creation of single-sex schools. Single-sex schools appear to help girls more than boys, and thus the problem of boys' underachievement is not truly addressed by them (Delaney and Devereux 2021). What appears to be more important for boys is the overall approach of the teacher, rather than his or her gender.

Encouraging Boys' Positive Engagement in Learning

With many boys failing to reach minimum proficiency in key foundational subjects such as reading across the world, education systems are clearly failing to meet the needs of large groups of children. Several theories and approaches to teaching and learning that are evidence-based and scientifically grounded—including Universal Design for Learning (UDL), Aligning Levels of Instruction with Goals and the Needs of Students (ALIGNS), and Teaching at the Right Level (TaRL) (box 4.1)—are a reminder that the key to raising boys' learning outcomes is to do what is best for all children. That is, to increase efforts to engage the child in learning experiences that are set at the right level for their goals and prior knowledge and skills, and that meet their needs and interests. These approaches place the focus of educators more on the child and less on the delivery of curriculum content, the latter of which is common in developing education systems. As such, they are useful ways of considering how to give the best possible educational opportunities to all children, not just boys or girls. However, the emphasis of these approaches on ensuring that the learning experiences are at the right level for the child, are engaging to the child, and that they allow for flexibility in how the child can access and

engage with the learning makes them highly relevant to a discussion of boys' learning, particularly in countries where there is significant underachievement of boys.

Box 4.1 Theories and principles for learning

Much research and theory has come out of the study of education and learning over the years. However, three relatively recent theories or frameworks stand out as highly relevant to the issue of addressing boys' underperformance, particularly in the context of less well-developed education systems.

Universal Design for Learning (UDL)

The concept of UDL has existed for many years, but it was first described comprehensively, and with practical classroom examples by the Center for Applied Special Technology (CAST) in *Teaching Every Student in the Digital Age: Universal Design for Learning* (Rose and Meyer 2002). Based on findings from brain research on how humans learn, and taking advantage of the benefits of digital technologies, the premise of UDL is to help all students reach expected standards while addressing their unique needs. This includes setting appropriate goals for every student, choosing methods and materials to optimize instructional support, and ensuring fair and accurate assessment of each student's progress. UDL implies creating curricula that:

1. Provide *multiple means of representation* so that learners can acquire information and knowledge in various ways.
2. Provide *multiple means of expression* so that learners have alternative ways to demonstrate what they know.
3. Provide *multiple means of engagement* so that learners can be motivated and challenged through tapping into their own interests.

Implications for boys' underachievement

The last point (regarding multiple means of engagement) is particularly relevant in terms of boys' underachievement in, for example, reading and science. It highlights the need to pay attention to the interests of boys as an access point for engaging in reading.

Aligning Levels of Instruction with Goals and the Needs of Students (ALIGNS)

The Research on Improving Systems of Education (RISE) Programme is a global research endeavor that seeks to understand how education systems in developing countries can overcome the learning crisis. In 2020, RISE published an Insight Note that presented a set of principles distilled from a number of approaches that were found to improve foundational learning in developing countries. These were summarized as ALIGNS. The principles are:

1. Set clear goals for children's learning progress in line with current learning levels.
2. Align instruction to be coherent with both current learning levels and targeted learning progress.
3. Provide effective and coherent support to teachers and instructors.

4. Tailor implementation to the opportunities and constraints of the context.

Implications for boys' underachievement

The predominance of boys in the groups that are not reaching basic proficiency, particularly in reading, means that they are likely to find it difficult to engage in further learning in a school setting. ALIGNS highlights the fact that a standard curriculum for a grade delivered to struggling students will not help them move from where they are to where they should be aiming with a coherent plan for learning (that is, instructional plans that clearly lead from baselines to goals). This approach represents a shift from the approach common in countries with significant underperformance of boys, in which curriculum delivery is the focus of the actors in the education system as opposed to focusing on students' goals in relation to their current level, with learning progress coherently managed and assessed, and assessments feeding into classroom practices. ALIGNS also draws attention to the crucial need for effective support to teachers.

Teaching at the Right Level (TaRL)

TaRL is a remedial education program designed to support students who are falling behind in foundational literacy and numeracy skills. TaRL, which is featured as one of the approaches used in the development of ALIGNS, was pioneered by an Indian NGO, Pratham. Randomized trials and a growing body of research point to the success of the TaRL approach when used in appropriate contexts. This approach groups children (mostly in grades 3 to 5) into groups based on their learning needs rather than their age or grade. It also provides time dedicated to the development of basic skills (rather than focusing on the curriculum); and assesses children's progress regularly (rather than only at the end of the year).

In India, two models are used:

1. A directly implemented learning camp model in which "bursts" of TaRL instruction take place for two to three hours a day for six to 10 consecutive days, amounting to 30 to 50 days, with children returning to their regular grade classes between the "bursts."
2. A government partnership model in which children are regrouped for one or two hours per day to focus on basic skills.

Implications for boys' underachievement

As found in countries such as the United States, boys are often overrepresented in remedial reading classes; grouping them together to focus on basic skills may be appropriate in some but not all cases, weighed against the evidence on gender-segregated classes.

Source: CAST: <http://cast.org>; Hwa, Kaffenberger, and Silberstein 2020; TaRL: <http://teachingattherightlevel.org>.

The finding that classroom climate tends to have a greater impact on boys than on girls (box 3.2), and that in the countries with some of the greatest underperformance of boys in relation to girls

(such as the GCC countries) there are markedly different school and classroom experiences for boys and girls points to the need to address issues of school and classroom climate. Most importantly, school disciplinary measures should not be detrimental to students' well-being. Clear standards for teacher and student behavior are needed as a minimum, along with more training for teachers in positive classroom behavior management techniques. School principals have an important role to play in leading change and setting behavior expectations. Box 4.3 provides additional information on improving school and classroom climates. Whole-school strategies that encompass the school community (teachers, students, and families) are the most effective. The COVID-19 pandemic and related distance education has led to the need for closer links between families and schools; this is something that can be harnessed at this moment in time to help schools reset relationships and expectations.

Box 4.3 Improving school and classroom climates

Developing school and classroom climates is a key responsibility of school leaders, and often a main feature of school improvement planning processes. Teachers are principally responsible for the climate in the classroom; therefore, classroom behavior management is a common feature of good preservice teacher preparation programs.

A positive environment conducive to learning is something that needs to be addressed for both boys and girls, whether in coeducational or single-sex schools. The literature on school and classroom climates spans several areas of education, from instructional methods to socioemotional skills, bullying, other kinds of school violence, disciplinary measures, and more.

It is clear that zero-tolerance policies do not work, nor does seeing the problem as being in the children and addressing it through a clinical approach (i.e., pathologizing childhood). What *does* work is a whole-school systemic approach.

In its guidance on *Improving Behavior in Schools*, the UK's Education Endowment Foundation provides the following recommendations to schools based on evidence from Ofsted school inspection reports on improving behavior:

1. **Know and understand your pupils and their influences.** Student behavior has multiple influences, some of which the teacher can manage directly; every student should have a supportive relationship with a school staff member.
2. **Teach learning behaviors alongside managing misbehavior.** The need to manage misbehavior will be reduced if learning behaviors are taught. This means encouraging students to self-reflect on their own behaviors.
3. **Use classroom management strategies to support good classroom behavior.** This involves intensive training with teachers reflecting on their classroom management, trying new approaches and reviewing what works for them.
4. **Use simple approaches as part of your regular routine.** Effective strategies do not necessarily require complex pedagogical changes. Specific behavior-related praise and working with parents, for example, can support good behavior.
5. **Use targeted approaches to meet the needs of individuals in your school.**

Approaches most likely need to be adapted for individual needs. Teachers supporting students with high behavior needs require training in specific strategies.

- 6. Consistency is key.** Consistency and coherence at a whole-school level are paramount.

Source: López 2014; Education Endowment Foundation 2019.

England's four-year initiative on "Raising Boys' Achievement" identified a set of strategies that work with boys but that also have the potential to raise girls' level of achievement. As such, they are deemed not as "boy-friendly" pedagogies but as good quality teaching overall. These included:

1. Pedagogic—classroom-based approaches centered on teaching and learning
2. Individual—focused on target-setting and mentoring
3. Organizational—ways of organizing learning at the whole school level
4. Sociocultural—approaches that attempt to create an environment in which boys and girls feel able to work with, rather than against, the aims and aspirations of the school.

Box 4.4 Initiatives to encourage boys' reading

Several initiatives to engage boys in reading have seen good results. A few are outlined below.

Premier League Reading Stars (UK)

Premier League Reading Stars is a 10-session reading intervention created to increase engagement and progress levels in reading for students in grades 5 and 6, focused on those who are underachieving in reading but who have significant interest in football. The initiative was developed by the National Literacy Trust, involving teachers and authors, and is aligned to the English and Welsh curricula. These sessions, which are called "Fixtures", can be used flexibly by schools to give students opportunities to practice their reading skills using football-related resources and texts.

Research conducted by the National Literacy Trust found the program to be very effective, with 3 out of 4 children making at least 6 months' progress in 10 weeks, and 1 in 3 children making a year's progress or more. Almost 9 out of 10 participants said that seeing Premier League footballers read made them want to read more. The number of children in the program who read every day doubled and 7 out of 10 declared that they were now proud to be readers.

Kicking and Reading (Germany)

This program, aimed at lower secondary boys' literacy, mixes soccer training with reading. Schools commit to a year of the program and contribute teachers, staff, and physical resources at no additional cost. A significant teacher professional development element of the program includes an initial one-day seminar and weekly 90-minute in-service

training by reading experts with peer-to-peer exchanges and materials to support their efforts, especially for struggling readers. In groups of around 15, the boys receive support focused on their needs, with reading material at three levels, and a variety of book genres (both fiction and nonfiction). The football training includes professional footballers working on football skills as well as teamwork, and excursions. The program ends with a “book slam”—a competition that features book reading, discussion, and students presenting on the books they have read, each in their own way.

The Raising Boys’ Achievement Project (England)

As part of a four-year “Raising Boys’ Achievement Project”, this initiative to encourage boys to become successful and satisfied readers involved making a wide variety of texts available to stimulate and sustain their interest, and to build confidence through paired reading schemes, which involves one student (the tutor, who is a more accomplished reader) supporting the other (the tutee) with their reading. This initiative was only successful for boys when students were given the space to talk and reflect on their reading and share ideas about the text. With this integrated approach to literacy, boys’ reading improved markedly.

Source: <https://plprimarystars.com/resources/reading-stars-pack>; <https://www.premierleague.com/news/61431>; Brozo 2019 ; Younger et al. 2005.

For some boys, formal schooling becomes very difficult, and even unsustainable. Supporting the need for creating alternatives to give boys an experience of success, Stahl and Dale (2013) noted that boys who had low cultural capital and who did not find formal schooling engaging became very proactive and confident in certain activities outside of the formal curriculum, such as music. Overall, though, the literature cautions against overly applying the stereotype that boys prefer or need kinesthetic learning, or that there is any “boy-friendly” pedagogy. Both boys and girls benefit when learning is diversified and engages them through different approaches.

Overall, there are relatively few policies and initiatives that countries have used to address underachievement among boys and men, and that is particularly the case in low- and middle-income countries. The collection of initiatives and principles outlined above are a start, and they point in the right direction for improving the situation. What is noticeable is that the policies that would help raise the educational achievement of boys and men are also ones that would raise the educational achievement of girls and women, or at least would benefit them in some way. As such, recognizing the problems, and using policies that work for those at the lowest levels of achievement is a path that would lead to benefits for both boys and girls. Many of the programs discussed in this section are not necessarily targeting boys, but both boys and girls. When a school engages in challenging negative stereotypes and social norms that are in conflict with academic success, all children benefit.

However, addressing educational underachievement among boys and men does deserve attention in its own right. As Delaney and Devereux (2021) report: “A Canadian program that used mentoring, tutoring, group activities, and financial incentives was found to be particularly effective at increasing academic attainment of disadvantaged high schoolers. However, girls responded more than boys, so the program increased rather than reduced gender gaps favoring girls” (Oreopoulos et al. 2017 in Delaney and Devereux 2021, 26). The point here is that what is good for girls may not always be sufficient to help boys achieve better outcomes, and so bespoke approaches may be needed for boys depending on need and context.

5. The Way Forward

Male educational underachievement is a phenomenon that requires the attention of policymakers, development agencies, academics and analysts, and the public. The phenomenon is found in most countries and appears to become more extensive as a low-income country becomes richer. Because it affects socially disadvantaged boys and men, it includes an evident equity dimension.

The framework provided in this report can be helpful to examine the myriad of factors known to have an influence on the educational outcomes of boys and men: (1) labor market patterns; (2) social norms; and (3) learning, teaching, and characteristics of education systems.

To develop programs and policy actions to respond to the phenomena, additional research will be necessary in order to test different approaches and better understand the cross-disciplinary dynamics that contribute to educational underachievement among boys and men. Further research within countries that have pervasive underachievement among boys and men will be crucial in order to better understand the issues specific to those contexts. As a next step, three paths of potential study could be pursued on a global basis.

- 1. In-depth country studies.** This report has emphasized the complexity of male educational underachievement where the specific characteristics of the labor market, the play of social norms, and the features of the educational system interact. Analyzing this at the country level would provide a wealth of information that could help deepen our global understanding of boys' and men's educational underachievement, and provide the basis for countries to design specific and targeted programs. The research on male underachievement has mostly focused on higher-income countries, whereas, as has been argued throughout this report, the phenomenon is more prevalent in middle-income countries. Consequently, case studies in countries in which educational underachievement among boys and men is prevalent, beyond high-income countries, would provide useful information to help support those countries in reducing learning poverty and improving the formation of human capital. Comparative case studies could also be useful; for example, countries from the same region that have very different outcomes (for example, the Philippines and Vietnam) could be analyzed side by side.
- 2. Thematic studies.** There are three key thematic areas where future research should focus. The first concerns the dimension of disadvantage. Understanding how different groups of boys and men achieve in terms of income level, ethnicity, race, and geography, for example, could provide important targeted and actionable insights. The second is higher education. The reasons why men do not attend or do not complete higher education merits further analysis and discussion. Finally, more in-depth analysis of how the labor market affects choices about whether or not to continue schooling for boys and men is also needed.
- 3. Applied research.** As governments consider possible actions—such as mentoring programs, conditional and unconditional cash transfers, teacher training programs, etc.—to address the educational underachievement of boys and men, it should be possible to implement robust research designs. Conducting impact evaluations may not be possible in every situation, but research methods that include the collection of sufficient data to determine both the strong and weak points of individual interventions would enable effective interventions to be identified. For example, in Lebanon, a World Bank project is using male dropout rates as an indicator to determine the impact of conditional cash transfers on education effectiveness.

This report would have benefited from a more extensive pool of data on trends, and details regarding male educational underachievement. National and international assessments of student learning are increasing in both number and coverage across countries; this trend will help fill the gaps needed to allow a full understanding of boys' underperformance over time. Data on noncognitive skills, early childhood development outcomes, and tertiary education learning outcomes are lacking, and these are areas that will be important to monitor for both males and females. Data on student enrollment and completion by gender and discipline (especially in the case of tertiary education) is sporadic in many countries. In order for countries to adequately analyze and monitor educational underachievement, improvements in this type of data collection and reporting are needed. Also, in the design of interventions and programs to address educational underachievement among boys and men, adequate data collection and reporting is necessary. This is particularly important in order to target responsive instruction and educational opportunities to boys identified as being at the highest risk of educational failure and most needful of additional supports, which need not be at the detriment of support for girls also in need of special support.

As a final point, it would be preferable that future research, monitoring and evaluation, reforms, and interventions take a holistic view of gender. Much research on underachievement has seen girls'/women's and boys'/men's achievement in education in isolation from one another. By studying them together—examining data for both males and females in education and related aspects (labor markets, social norms, and characteristics of teaching and learning) a deeper understanding could be gained. Although this may be difficult to undertake in one global report, the approach may be helpful at regional or national levels. In many contexts, special interventions need to be continued for girls and women even though they may be overrepresented and/or outperforming boys/men. But it is important not to make it an either-or choice in terms of policy or programmatic responses. Taking a holistic view of gender will allow a balanced approach that recognizes the needs of all groups and identifies the approaches that work for boys/men, girls/women, and in some cases all children/adults.

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Appendix A: Additional Tables and Figures

Appendix table 1. Mean performance (scale score) in the Latin American Laboratory for Assessment of the Quality of Education (LLECE): Regional Comparative and Explanatory Study, by gender, 2013

	Mathematics						Reading						Science		
	3rd grade			6th grade			3rd grade			6th grade			6th grade		
	Female	Male	M-F	Female	Male	M-F	Female	Male	M-F	Female	Male	M-F	Female	Male	M-F
Argentina	536	530	-6	526	534	8	518	507	-11	517	500	-18	505	497	-8
Brazil	542	537	-5	515	525	10	526	513	-13	529	518	-12	501	497	-4
Chile	582	583	1	578	583	6	576	567	-10	564	551	-13	558	544	-13
Colombia	520	518	-2	506	523	17	526	512	-14	529	523	-7	524	529	4
Costa Rica	555	560	4	530	540	10	547	539	-8	548	544	-4	543	550	8
Cuba	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dominican Republic	450	446	-4	434	439	5	462	445	-17	461	450	-11	448	440	-8
Ecuador	523	526	3	507	518	11	508	509	1	493	489	-3	508	512	4
El Salvador	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Guatemala	498	503	6	478	498	20	494	496	2	488	490	2	484	491	7
Honduras	508	507	-2	475	485	10	498	495	-3	483	475	-8	474	470	-5
Mexico	551	548	-3	562	569	7	525	514	-11	532	526	-6	530	529	-2
Nicaragua	481	489	8	458	466	8	478	478	-1	485	472	-13	472	473	1
Panama	498	491	-7	463	460	-2	494	486	-8	489	475	-14	481	469	-13
Paraguay	486	490	4	454	457	3	487	475	-11	475	463	-12	460	450	-10
Peru	528	537	8	515	540	25	522	521	0	506	505	0	499	502	3
Uruguay	557	545	-12	563	571	8	532	517	-14	539	525	-14	518	515	-3

Source: LLECE data accessed from the World Bank EdStats database.

Appendix table 2. Mean performance (scale score) in the Southern and Eastern African Consortium for Monitoring Educational Quality (SACMEQ), by gender, grade 6, 2007

	Mathematics			Reading		
	Female	Male	M-F	Female	Male	M-F
Botswana	524	518	-6	549	520	-30
Eswatini	536	546	9	554	545	-8
Kenya	546	568	22	542	544	2
Lesotho	477	477	0	472	464	-8
Malawi	441	453	12	429	438	10
Mauritius	631	616	-15	589	559	-30
Mozambique	479	488	10	473	478	5
Namibia	470	472	2	504	490	-14
Seychelles	567	535	-32	607	544	-63
South Africa	498	491	-7	506	484	-23
Tanzania	538	569	31	570	586	16
Uganda	477	487	10	476	482	6
Zambia	429	441	12	432	437	6
Zimbabwe	519	521	2	513	502	-11

Source: SACMEQ data accessed from the World Bank EdStats database.

Appendix table 3. Mean performance (scale score) in the Programme for the Analysis of Education Systems (PASEC), by gender, 2014

	2nd grade						6th grade					
	Language			Mathematics			Reading			Mathematics		
	Female	Male	M-F	Female	Male	M-F	Female	Male	M-F	Female	Male	M-F
Benin	460	457	-2	457	452	-5	520	527	7	500	494	-6
Burkina Faso	518	509	-9	502	510	9	530	534	4	533	546	13
Burundi	630	625	-5	609	601	-9	532	520	-12	612	579	-33
Cameroon	499	506	7	493	512	19	527	509	-18	491	489	-2
Chad	473	487	15	467	514	47	421	439	18	437	459	22
Congo, Rep.	525	520	-5	539	543	4	508	498	-10	474	489	15
Cote d'Ivoire	478	489	11	452	479	26	520	515	-5	468	482	14
Niger	433	437	4	428	445	18	400	406	6	402	409	7
Senegal	498	506	8	514	529	15	546	551	4	538	557	19
Togo	474	474	0	470	478	8	500	495	-6	516	524	8

Source: PASEC data accessed from the World Bank EdStats database.

Appendix table 4. Percentage of grade 2 and 3 students who reached minimum proficiency in reading, by gender, Early Grade Reading Assessments (EGRA), 2010–2014

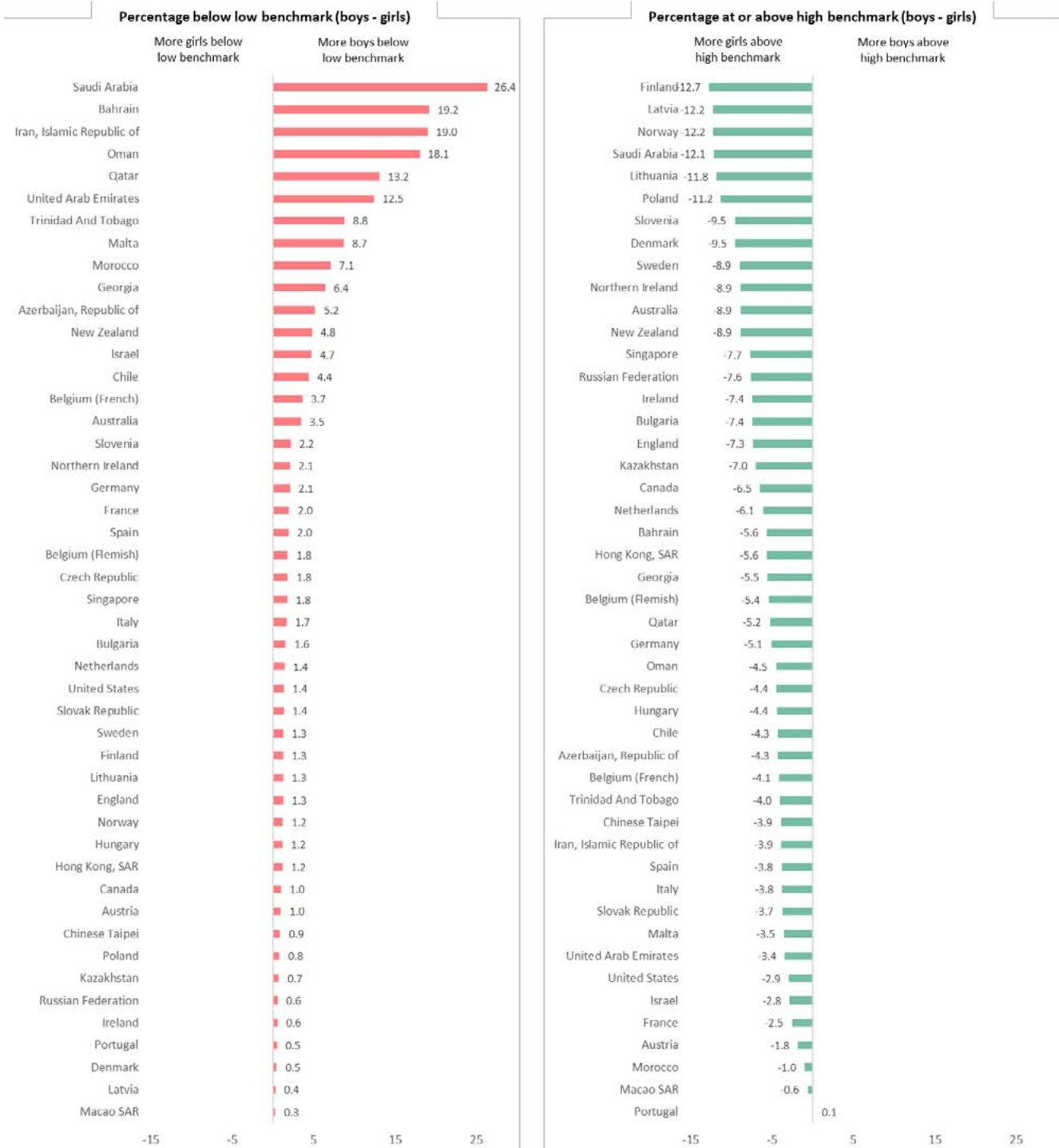
	Boys	Girls	Boys-Girls		Boys	Girls	Boys-Girls
	Grade 2				Grade 3		
Ethiopia (2014)				Egypt (2013)			
Afaan Oromo	6	3	3	Arabic	5	5	0
Af Somali	16	13	3	Jordan (2014)			
Hadiyyisa	6	3	3	Modern Standard Arabic (MSA)	11	20	-9
Sidamu Afoo	2	0	2	Philippines (2013/14)			
Tigrinya	1	0	1	Filipino	26	48	-22
Wolayttatto	9	7	2	English	40	58	-18
Ghana (2013)				Vanuatu (2010)			
Ghanaian language	3	2	1		19	27	-8
English	6	7	-1				
Jordan (2014)							
Modern Standard Arabic (MSA)	1	4	-3				
Liberia (2013)							
English	6	3	3				
Malawi (2012)							
Chichewa	0	0	0				
Pakistan (2013)							
Urdu	16	25	-9				
Sindhi	26	22	4				
Philippines (2013/14)							
Ilokano	27	46	-19				
Hiligaynon	29	40	-11				
Cebuano	41	62	-21				
Maguindanaoan	15	30	-15				
Tanzania (2013)							
Kiswahili	4	6	-2				
Vanuatu (2010)							
	3	7	-4				
West Bank (2014)							
Arabic with diacritics	15	22	-7				
Arabic without diacritics	33	21	12				
Zambia (2014)							
	1	1	0				

Note: This indicator monitors SDG 4.1.1a, which can be monitored using various measures including EGRA. These results represent the percentage of students reaching draft reading proficiency standards developed with the ministries of education. Countries are solely responsible for reporting on this indicator to the UNESCO Institute for Statistics.

Source: USAID Early Grade Reading Barometer <https://earlygradereadingbarometer.org/>

Appendix figure 1. Percentage of students below the lower international benchmark and at or above the high international benchmark (boys - girls), PIRLS 2016 and TIMSS 2019

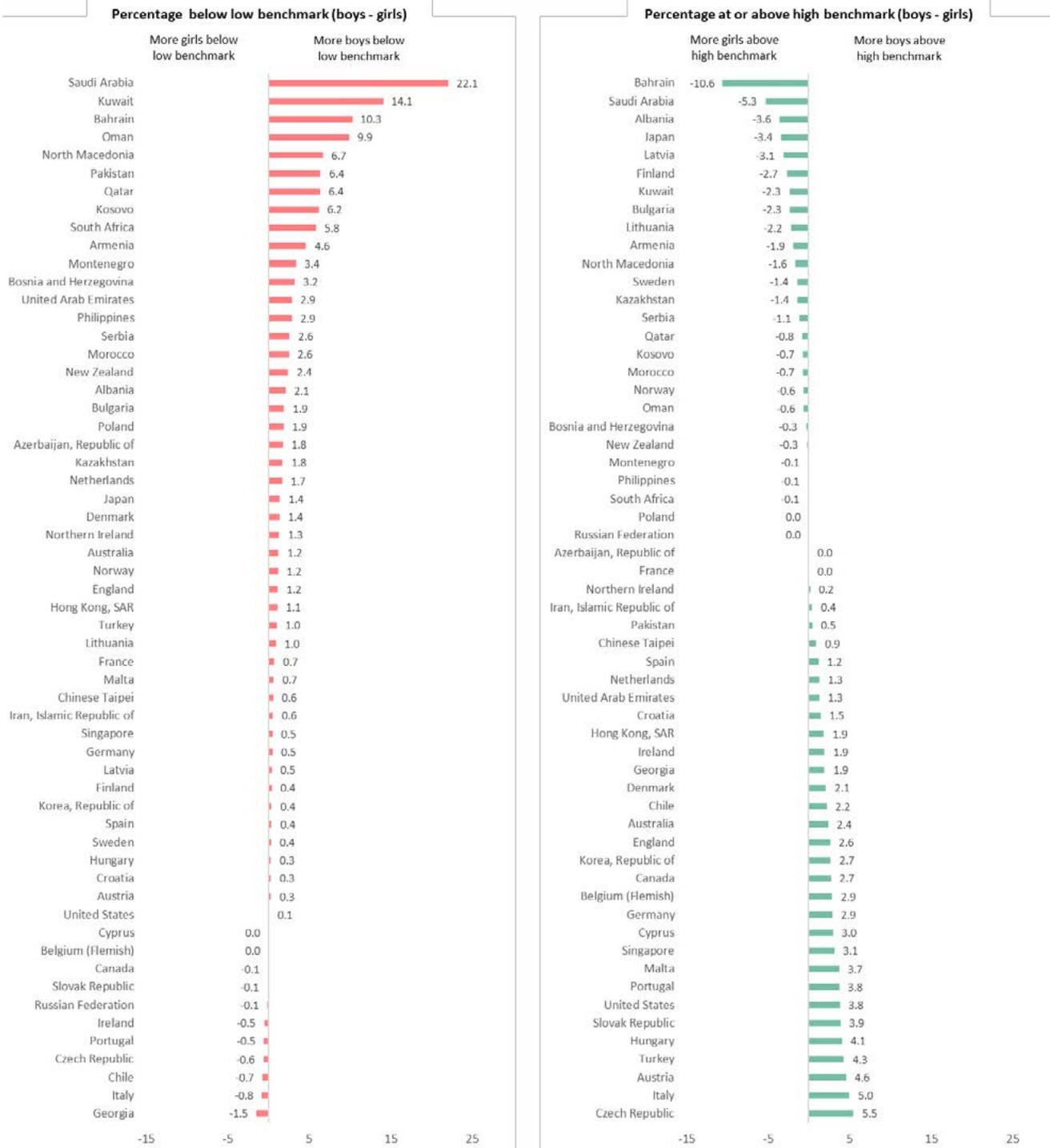
A. Grade 4 Reading, PIRLS 2016



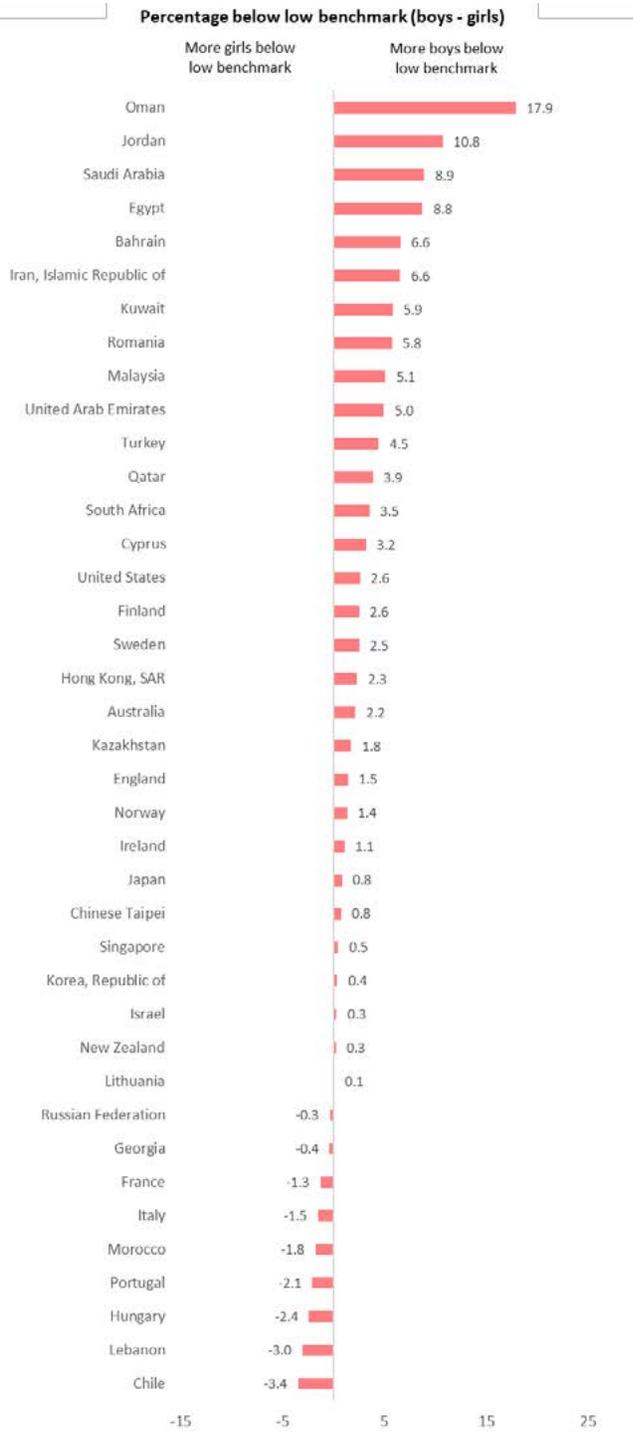
B. Grade 4 Mathematics, TIMSS 2019



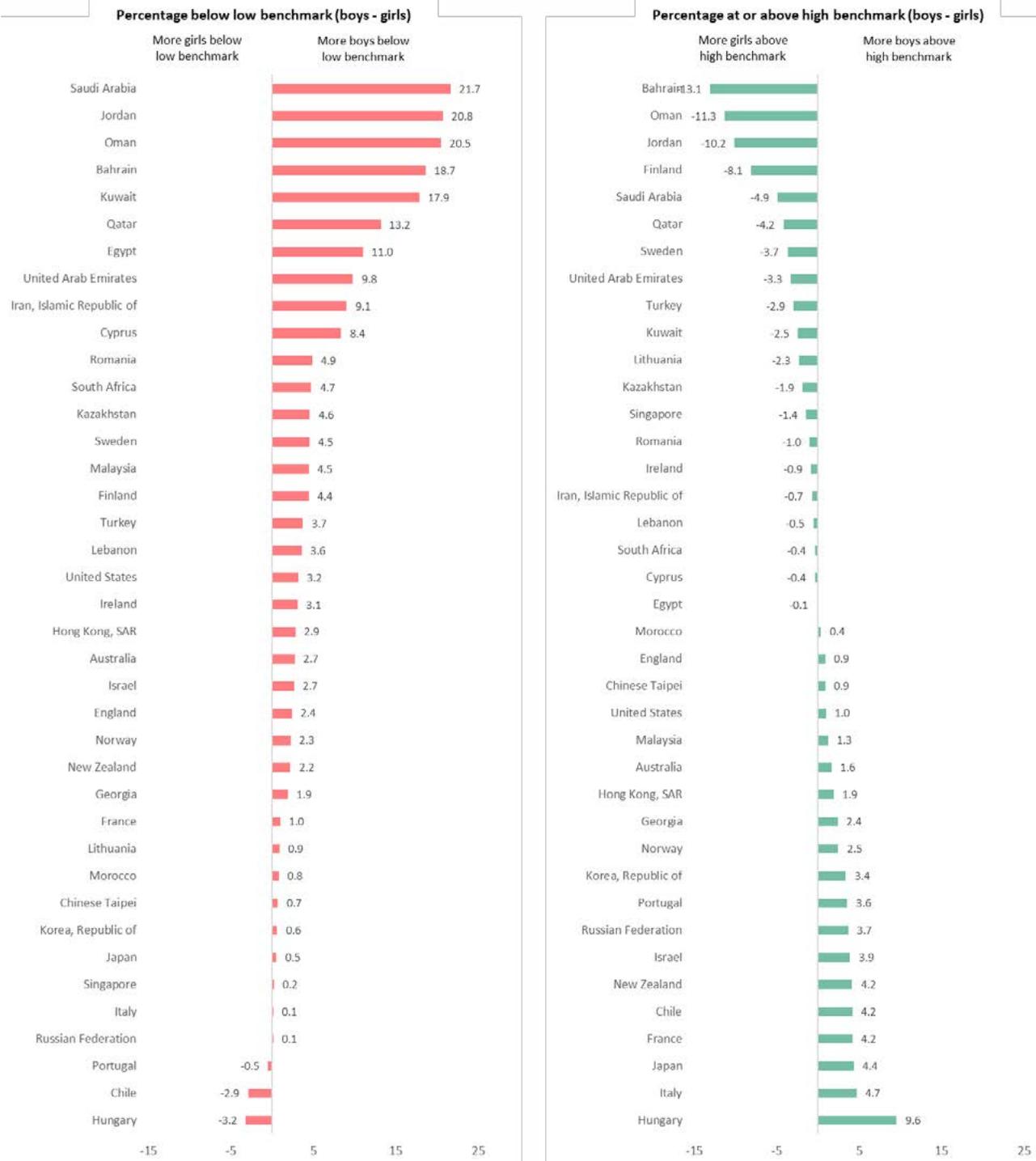
C. Grade 4 Science, TIMSS 2019



D. Grade 8 Mathematics, TIMSS 2019



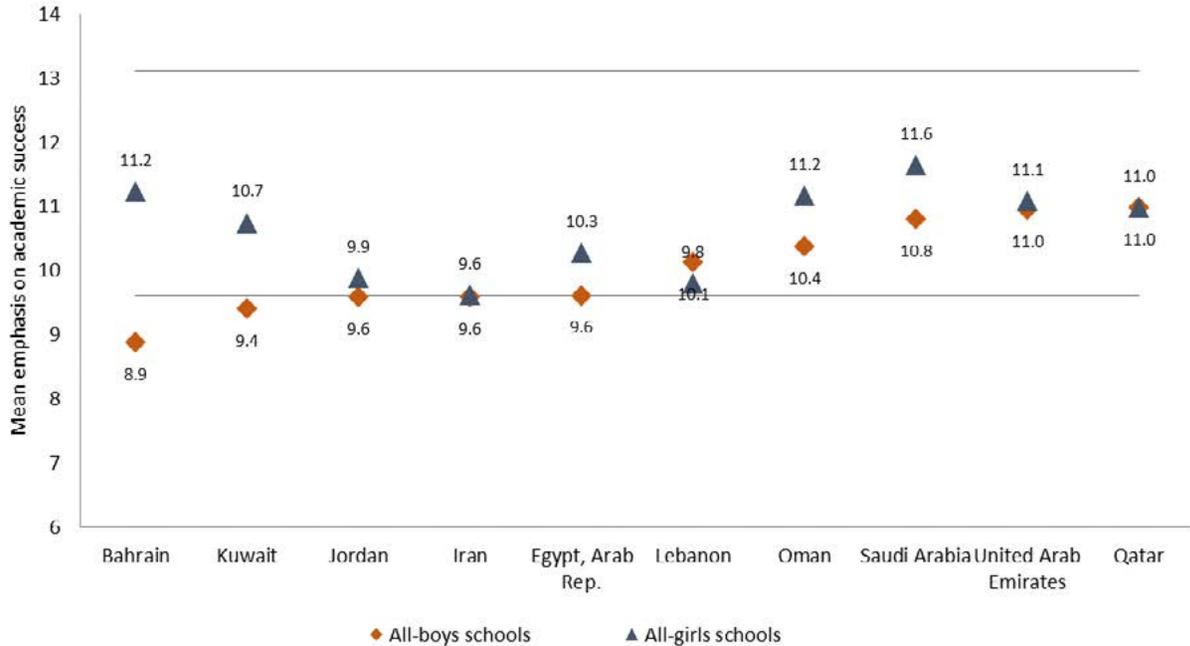
E. Grade 8 Science, TIMSS 2019



Source: Authors' analysis based on IEA PIRLS 2016 and TIMSS 2019 databases.

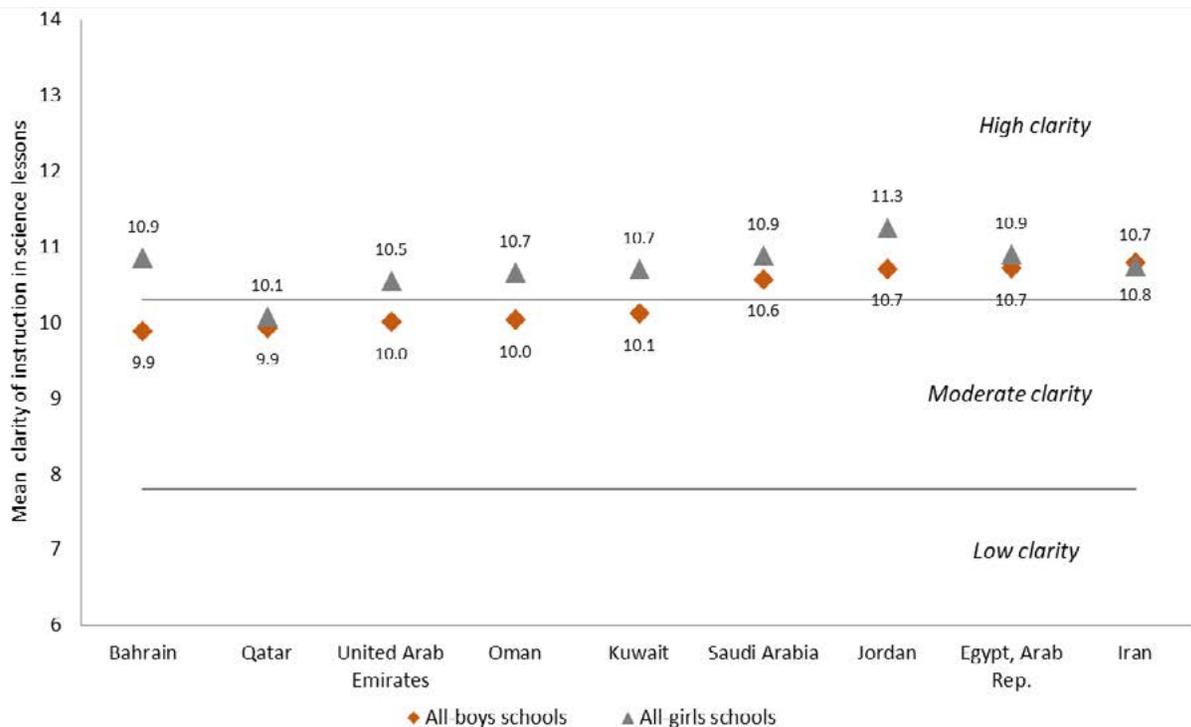
Appendix figure 2. Academic emphasis of school, all-boys' and all-girls' schools, grade 8, TIMSS 2019

Principals' views



Source. Based on data from the IEA TIMSS 2019 International Database. The academic emphasis scale includes indicators such as teachers' expectations for student achievement, teachers' ability to inspire students, and students' respect for classmates who excel in school, for example.

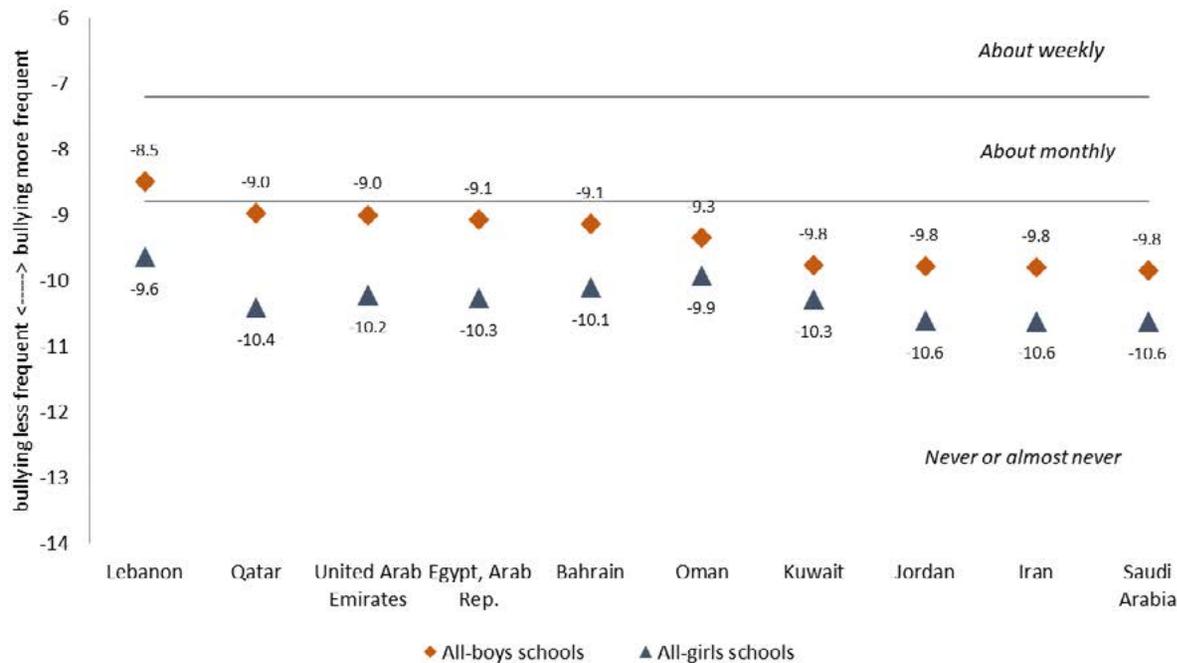
Appendix figure 3. Clarity of instruction in science lessons, all-boys' and all-girls' schools, grade 8, TIMSS 2019



Source. Based on data from the IEA TIMSS 2019 International Database.

Appendix figure 4. Frequency of student bullying, all-boys' and all-girls' schools, grade 8, TIMSS 2019

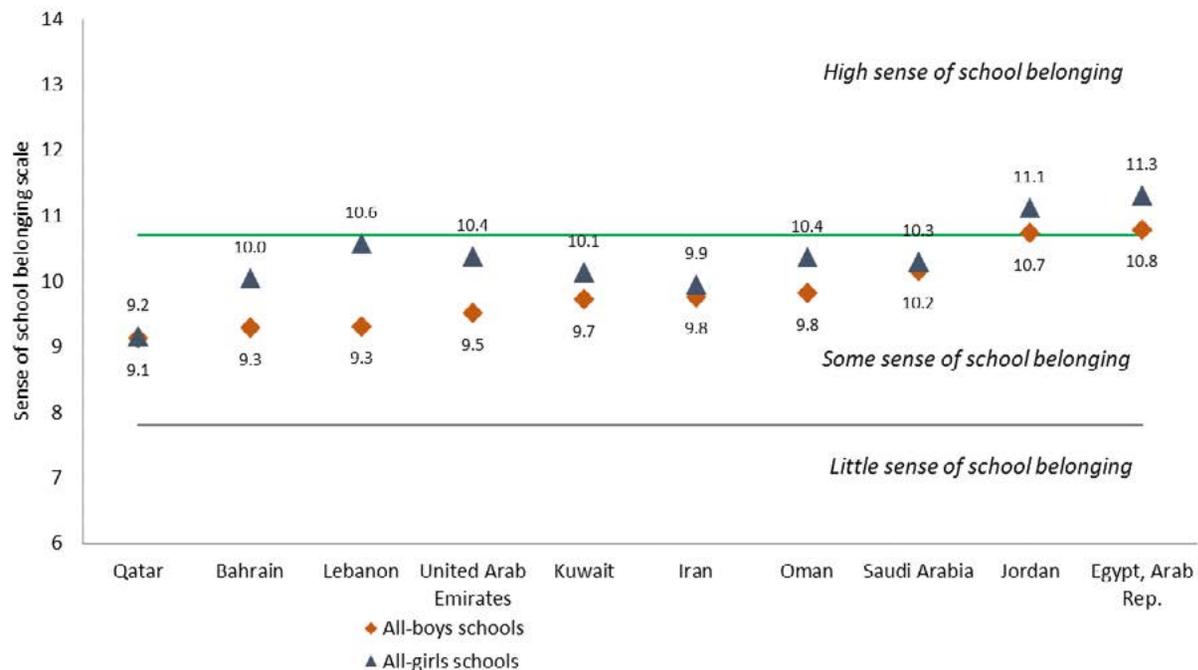
Bullying scale: higher = less bullying (students' view)



Source. Based on data from the IEA TIMSS 2019 International Database.

Appendix figure 5. Students' sense of belonging in school, all-boys' and all-girls' schools, grade 8, TIMSS 2019

Sense of belonging scale: higher = greater sense of belonging



Source. Based on data from the IEA TIMSS 2019 International Database.



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