



# THE INTERSECTION OF GENDER EQUALITY AND EDUCATION IN SOUTH-EAST EUROPE

*A REGIONAL SITUATION ANALYSIS OF THE NEXUS BETWEEN SDG4  
(QUALITY EDUCATION) AND SDG5 (GENDER EQUALITY)*



United Nations  
Educational, Scientific and  
Cultural Organization

**Regional Bureau  
for Science and Culture  
in Europe**

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# The Intersection of Gender Equality and Education in South-East Europe: A Regional Situation Analysis of the Nexus between SDG4 and SDG5

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**May 2019**

VNI/2019/PI/H/4

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**Cover Image:**

Source: Girls go IT Moldova (2019)

**Report Images:**

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# Acronyms

<b>EU</b>	<b>European Union</b>
<b>GEM Report</b>	<b>Global Education Monitoring Report</b>
<b>GDP</b>	<b>Gross Domestic Product</b>
<b>ICILS</b>	<b>International Computer and Information Literacy Study</b>
<b>ICT</b>	<b>Information and Communication Technologies</b>
<b>MDGs</b>	<b>Millennium Development Goals</b>
<b>OECD</b>	<b>Organization for Economic Cooperation and Development</b>
<b>PISA</b>	<b>Program for International Student Assessment</b>
<b>SDGs</b>	<b>Sustainable Development Goals</b>
<b>SDG4</b>	<b>Sustainable Development Goal 4 (on Education)</b>
<b>SDG5</b>	<b>Sustainable Development Goal 5 (on Gender Equality)</b>
<b>SEE</b>	<b>South-East Europe</b>
<b>STEM</b>	<b>Science, Technology, Engineering and Mathematics</b>
<b>TIMSS</b>	<b>Trends in International Mathematics and Science Study</b>
<b>TVET</b>	<b>Technical and Vocational Education and Training</b>
<b>UNESCO UIS</b>	<b>UNESCO Institute of Statistics</b>
<b>USD</b>	<b>United States Dollars</b>

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# Executive Summary

The 2030 Agenda for Sustainable Development aims to end poverty, protect the planet, and ensure prosperity for all through action for *People, Planet, Prosperity, Peace, and Partnership*. Within the framework of the Sustainable Development Goals (SDGs), education and gender are issues that not only intersect with each other but also with the remaining 15 goals, both impacting on and being affected by areas such as poverty, health and well-being, and economic growth. Gender disparities in educational access, attainment, and outcomes have consequences for skills development, participation in science, technology, engineering, and mathematics (STEM), dropout, and early marriage, and further interact with issues such as equal pay, teacher maternity leave, and gender-biased norms. However, education is not only affected by gender inequality, among many other factors, but also has an important role to play in ensuring gender equality in society. Thus, the multifaceted system of interlinkages between gender and education, conceptualized as the nexus between SDGs 4 and 5, merits careful analysis.

Each region and country, however, faces unique challenges in achieving both educational and gender equity. South-East Europe (SEE) is no exception, as some countries have only recently achieved political stability, economic growth is variable, and unemployment is high. However, the region is also diverse in terms of gross domestic product (GDP), populations, and gender disparities, with certain countries making greater progress than others in gender equality in education. The governments have declared their commitment to gender equality and many are under pressure to meet standards set by the European Union as they aim toward integration, but in many situations, these commitments have not been enough to reduce the gap between men and women. More than political will is necessary if SDG 5, specifically target 5.5 on full and effective participation and opportunities for leadership at all levels, is to be achieved.

This report therefore focuses on highlighting both progress and persistent challenges. It does so by analyzing the current situation of gender equality in education, including gender parity in participation, education quality, and outcomes, as well as issues related to gender equality in which education plays an important role, such as policies that disproportionately affect women, early and unintended pregnancy, child marriage, and human trafficking. It relies on the most recent available data from the UNESCO Institute of Statistics (UIS), as well as supplemental data including from UNICEF, UN Women, and the Organization for Economic Cooperation and Development (OECD), to descriptively analyze the rates for females and males, considering also progress over the last decade, and to identify where progress in gender equality has been made and where actions are needed to ensure gender equality in and through education.

Educational participation in SEE provides information on both the availability and use of educational services. While countries have come very close to achieving gender parity in primary and secondary education, certain gaps are still evident. More concerning, however, are educational attendance rates, which overall show gender parity but, when analyzed by urban or rural location and wealth quintile, show gender gaps as large as 17 percent at the expense of girls at the primary level. This raises concern about the factors beyond enrollment that impede participation in education for girls in SEE. Despite almost parity in transition rates, completion rates are lower among girls than boys in basic education, and dropout rates are higher among girls at certain levels and in certain countries, such as Bosnia and Herzegovina and Montenegro, having multifaceted and complex consequences on future opportunities and well-being. Similarly, on average in SEE, the completion rate in post-secondary education is higher among women than men, but completion rate is lower on average among girls in basic education. Furthermore, as with most indicators for sustainable



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development, the situation is more concerning when gender is considered with other characteristics, including ability, rurality, ethnic minority status, or mobility, including internally displaced populations.

Both minimum proficiency levels and performance on international assessments shows that outcomes for female students are often better than those of males in terms of learning. However, adult literacy rates show the necessity of continuing education and lifelong learning available beyond basic education for those who never reach basic proficiency. Additionally, there is a great need for more information on Information and Communication Technology (ICT) skills disaggregated by gender to determine if schools are preparing male and female students equally and adequately for the 21<sup>st</sup> century workforce.

Although women have lower rates of basic educational attainment, they participate in post-secondary education and earn advanced degrees at higher rates than men. But despite the importantly large presence of women among all STEM graduates, they are concentrated in Natural Sciences, Mathematics, and Statistics, with continued underrepresentation in ICT and Engineering, Manufacturing, and Construction. Despite their advanced degrees, women also comprise the minority of researchers. These concerns point to the need for education to play an active role in challenging stereotypes for women in STEM, representing women in these fields, and encouraging girls to pursue these studies through changes in hiring, pedagogy, assessment, and materials (UNESCO, 2017a).

The Education field is consistently comprised of mostly female workers, who are the majority of teachers, especially at the pre-primary and primary levels. Men make up a higher percentage of teachers at the secondary level, but it is not until tertiary education that the majority of professors are male. This is a cause for concern regarding women's opportunities for higher-level teaching positions, but it also illuminates the need to ensure that teachers at all levels are trained properly and treated as professionals, not only to ensure effective education for students but also to promote women's empowerment in a primarily female field. Despite policies in some countries that require tertiary degrees and specialized teacher training, some countries still permit teachers to possess only a secondary education with specialized training. Nonetheless, lack of data makes it difficult to analyze where the greatest need for teacher training exists, although it remains a concern throughout the region. Related issues include pay and teaching conditions, which play a role in responding to teaching shortages, and parental leave policies that can aim to ensure equality for female teachers and encourage mothers to stay active in the labor force.

Additional issues are addressed in this report that relate to the intersection of education and gender. One is adolescent fertility, as some SEE countries see high rates. Both adolescent fertility and early marriage can have important consequences for early school leaving and significant, negative impacts on a girl's health, development, and the fulfillment of her rights. Ensuring that girls are equally prepared for the workplace including with digital skills can help to combat stereotypes and behaviors such as dropout that may lead to adolescent fertility and early marriage. Education also has an important role to play in decreasing human and child trafficking. This includes ensuring the participation of all boys and girls in education, especially among historically excluded communities such as the Roma and street children, and decreasing dropout rates. It also involves teaching educators of the warning signs of abuse, monitoring online activity in school, and raising awareness and safety among students. Furthermore, by ensuring supportive, inclusive, and gender-sensitive environments at school with, for example, single-sex sanitation facilities, the education system can help to combat stereotypes, gender-based violence, and early school leaving to improve educational participation and outcomes for girls and women and promote gender equality.

# Introduction

In September 2015, countries adopted the Sustainable Development Goals (SDGs) as part of the 2030 Agenda for Sustainable Development to end poverty, protect the planet, and ensure prosperity for all (UN General Assembly, 2015). These goals, which officially came into force on 1 January 2016, set the tone for countries' implementation of the 2030 Agenda, calling countries to ensure that no one is left behind in the fight against poverty, inequality, and climate change.

Although the SDGs are not legally binding, the 2030 Agenda relies on national governments to enact the goals at the country level by incorporating them within their national frameworks, leading sustainable development strategies in line with the goals, and consistently and reliably monitoring progress toward their achievement. This requires quality, accessible, and timely data collection (UN General Assembly, 2015), which relies on well-developed capacity for monitoring and evaluation and involves effective information systems, efficient tools and methods for data collection, trained personnel for collecting and analyzing data, and accessible databases. However, many challenges currently exist regarding the data collection and monitoring capacities of these countries, and thus, many gaps exist in the data available for monitoring the SDGs.

In July 2018, The UNESCO Regional Bureau for Science and Culture in Europe conducted a data-mapping study of the availability of indicator data for tracking progress toward SDG4 on education in South-East Europe (Fuller, 2018). The study aimed to show where there may be the greatest need for capacity development at a regional, national, and indicator level. By analyzing the availability of this data in South-East Europe (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, the Republic of Moldova, Romania, Serbia, Slovenia, and North Macedonia), the preliminary study illuminated trends and the most visible concerns at the regional and national levels. For example, due to the significant amount of missing data, only 21 percent of the SDG4 targets on average can be monitored in the region. Furthermore, a significant percentage of the countries are missing disaggregated data (i.e., by gender) for indicators 4.2.1, 4.6.1, 4.c.1, and 4.c.6, which prevents the monitoring of progress toward and the achievement of not only SDG4 on education but also SDG5 on gender equality and women's empowerment.

Therefore, while the report concluded by offering recommendations about identifying data gaps and strengthening national data collection and monitoring capacity, it also provided important insight regarding gender issues that went beyond the scope of the report itself. It did so by highlighting where data was missing related to gender issues and education, showing the need for data to be disaggregated by sex, and underscored the intersection of gender issues, education, and multiple Sustainable Development Goals. This insight served as the foundation of this document, which sets out to further explore the intersection of gender and education by highlighting areas of concern in the existing information as well as the places where data is missing.

## Background on the Region of South-East Europe and Gender

The region of SEE in this report refers to Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, the Republic of Moldova, Romania, Serbia, Slovenia, and North Macedonia. The countries face a number of challenges for development, as some have only recently achieved political stability and still experience variable economic growth and high unemployment.



Despite their geographic proximity and shared challenges in recent years, the countries of SEE are different in many ways. With populations ranging from approximately 620,000 people in Montenegro, to over 19.8 million in Romania, and GDP per capita that ranges from 2,165 USD<sup>1</sup> in the Republic of Moldova to 25,662 USD in Slovenia, the countries of SEE vary from the most pressing needs of their diverse populations to their progress toward sustainable development. These differences are further evidenced by their great variability in data collection capacity. Regarding tracking progress toward SDG4, some countries provide data for monitoring close to 60 percent of the indicators, while others have data available to monitor only approximately 30 percent of SDG4 indicators. This points to great variation in their monitoring and evaluation systems and their diverse needs in transitioning toward sustainable development.

The period of centrally planned economies favored equality between women and men in education and employment, as well as in social, cultural, and political life. Women's social welfare in the workplace included generous maternity leave, state-run childcare, and the prohibition of discrimination against pregnant and nursing women. Some countries instituted quotas to ensure representation of women in elected bodies of power (United Nations Economic Commission for Europe, 2010). These changes, however, were not sustainable, and gender equality was not truly achieved, as women were overrepresented in sectors such as healthcare and education and underrepresented in leadership. Furthermore, economic and political reforms led to high unemployment and declining rates of women's participation in government and leadership, with many women remaining underrepresented in decision-making positions (United Nations Development Programme, 2017).

This underrepresentation is present even among EU Member States. In Bulgaria, for example, 35 percent of the government representatives were female, as of 2018, while in Romania the figure is 29 percent, and in Slovenia and Croatia it is 24 percent (Robert Schuman Foundation, 2019). Women also have less access to the labor market than men, reflecting global patterns and highlighting the corruption and weak accountability mechanisms, educational disparities, and religious and cultural traditions that all affect progress toward achieving equality between men and women (Robert Schuman Foundation, 2019). Furthermore, existing national commitments through gender action plans and laws are often slowly and poorly implemented and under-funded (United Nations Development Fund for Women, 2010). Nevertheless, the governments of SEE have declared their commitment to gender equality, by joining the Beijing Declaration and Platform of Action (United Nations, 1995). Among its twelve critical areas of concern, it most importantly mentions education and training. The commitment to gender equality in the region has also been affected by integration with the European Union (EU), as four of these countries (Bulgaria, Croatia, Romania, and Slovenia) are EU Member States, while Albania, Montenegro, Serbia, and North Macedonia are candidate countries. Bosnia and Herzegovina, although it does not yet fulfill the requirements for integration, is a potential candidate. Thus, many of the countries in SEE are expected to meet the standards set by the EU, as candidate countries must accept the EU's *acquis communautaire*, or the binding body of common rights and obligations, before they may become Member States.

At the national level, these countries have given specific constitutional attention to prohibiting discrimination and protecting women's rights to education, along with employment, healthcare, and equality. However, cultural norms in the region may still attribute women to specific roles, making it difficult to translate constitutional rights into reality. Thus, many of these countries, including Albania, Bosnia and Herzegovina, Montenegro, the Republic of Moldova, Serbia, and North Macedonia have adopted laws on gender equality

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<sup>1</sup> Constant 2010 USD.

to combat such barriers. Nevertheless, inequality is still visible in all sectors of society, and this report focuses on highlighting gender issues in relation to SDG4 on education in SEE.

### The Nexus of Gender and Education: A Critical Intersection

Gender and education are intersecting issues with a complex and dynamic relationship (Figure 1). Gender differences in access, attainment, and learning quality impact not only learners' academic success but also their future employment prospects and economic independence. Similarly, education is not only affected by gender inequality but also has an important role to play in ensuring gender equality in society.

**Figure 1. Examples of issues that lie at the nexus of gender and education**



**Source:** Author's elaboration.

The Global Education Monitoring (GEM) Report 2018 explains how the SDGs and the 2030 Agenda for Sustainable Development reflect a greater emphasis than the Millennium Development Goals (MDGs) on the importance of monitoring gender equality in education. With a much wider scope and with a universal agenda that requires action by all countries, the new framework demonstrates the interconnectedness of education and gender equality and relies on a broader resource base, including standards and tools, to call for the disaggregation of all indicators by gender wherever possible (UNESCO, 2018a). This marks significant progress from the MDGs, which considered gender parity in primary, secondary, and tertiary enrollment as well as adult literacy. Nonetheless, the *GEM Report 2018 Gender Review* acknowledges that the current framework is still incomplete and should be broadened to include more indicators such as gender norms, values, and attitudes; laws and policies; and other institutions (UNESCO, 2018a). Examples include rates of early marriage and pregnancy, labor-force participation rates for women, whether a country's constitution contains at least one approach to gender equality, whether there is a policy on gender equality in education, the percentage of women in school leadership and management positions, gender parity in teacher pay, the percentage of teachers trained in gender sensitivity, and the percentage of countries that include gender equality topics, such as discrimination, gender roles, violence, and sexual and reproductive health, in their curricula. While clearly work remains for improving not only the data that exists but also the indicators for which data is collected, the below table presents a list of the SDG targets covered in this report that lie at the intersection of gender equality and education.

**Table 1. SDG targets addressed throughout the report**

Target 4.1	<ul style="list-style-type: none"> <li>•By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes</li> </ul>
Target 4.2	<ul style="list-style-type: none"> <li>•By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education</li> </ul>
Target 4.3	<ul style="list-style-type: none"> <li>•By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university</li> </ul>
Target 4.4	<ul style="list-style-type: none"> <li>•By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship</li> </ul>
Target 4.5	<ul style="list-style-type: none"> <li>•By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations</li> </ul>
Target 4.6	<ul style="list-style-type: none"> <li>•By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy</li> </ul>
Target 4.a	<ul style="list-style-type: none"> <li>•Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all</li> </ul>
Target 4.c	<ul style="list-style-type: none"> <li>•By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States</li> </ul>
Target 5.1	<ul style="list-style-type: none"> <li>•End all forms of discrimination against all women and girls everywhere</li> </ul>
Target 5.2	<ul style="list-style-type: none"> <li>•Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation</li> </ul>
Target 5.3	<ul style="list-style-type: none"> <li>•Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation</li> </ul>
Target 5.6	<ul style="list-style-type: none"> <li>•Ensure universal access to sexual and reproductive health and reproductive rights</li> </ul>

# Chapter 1:

## Educational Participation

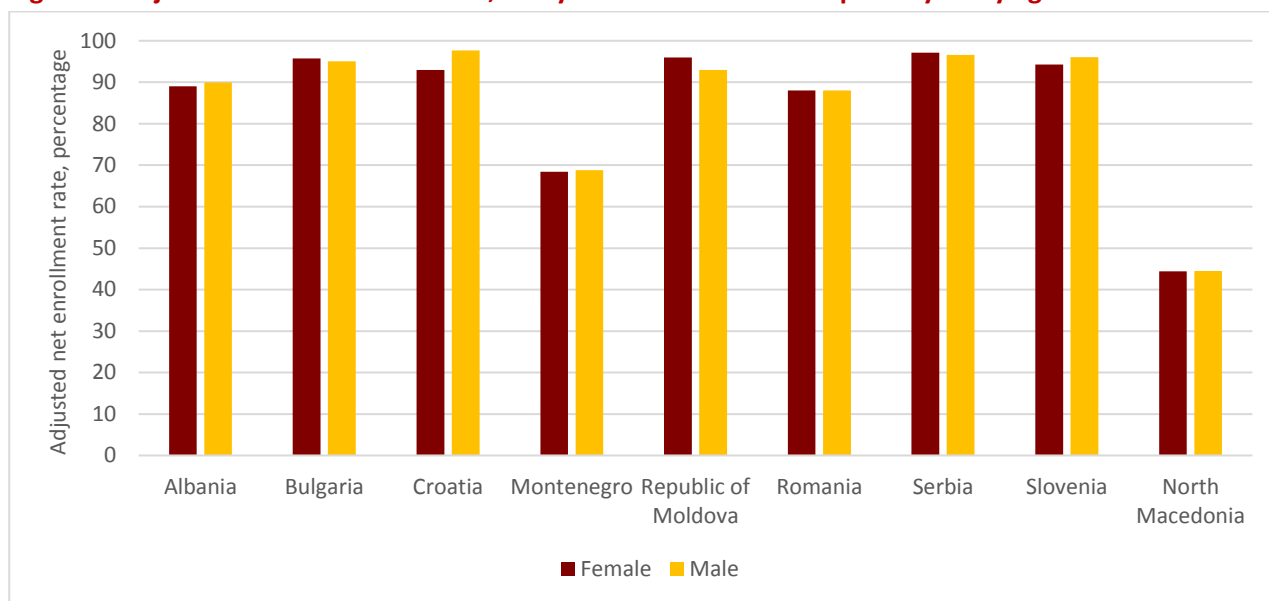
This first chapter provides information on enrollment, attendance, completion, transition, and attainment, as well as out-of-school children. It also considers how gender and educational participation intersect for disadvantaged and minority populations.



### 1.1 Pre-Primary Education

Not all countries throughout SEE guarantee free pre-primary education in their legal frameworks. For example, three years of free pre-primary education are guaranteed in Albania and Romania, while four are guaranteed in Bulgaria and the Republic of Moldova. According to the most recent data from the UNESCO Institute of Statistics, Bosnia and Herzegovina, Croatia, Montenegro, Serbia, Slovenia, and North Macedonia do not guarantee free pre-primary education for children before entering primary school. Overall gross enrolment rates for pre-primary education are highest in Bulgaria (80.8 percent) and the Republic of Moldova (57.8 percent), where four years of free pre-primary education is guaranteed. In Albania (47.5 percent) and Romania (45.4 percent), however, they are low as consistent with other countries in the region, where the lowest gross enrollment rate in pre-primary education is in North Macedonia (21.2 percent). However, adjusted net enrollment rates for the one year before the official primary entry age reflect higher figures, the highest being 96.8 in Serbia, where the rate for girls is slightly higher (Figure 2), and the lowest being 44.4 percent in North Macedonia, although the regional average is 85.3 percent.

**Figure 2: Adjusted net enrollment rates, one year before the official primary entry age**



**Notes:** Notes: Data for Albania and North Macedonia are from 2015; Bulgaria, Croatia, Romania, and Slovenia are from 2016; data from Montenegro, Republic of Moldova, and Serbia are from 2017. “Macedonia” refers to North Macedonia.

**Source:** UNESCO Institute for Statistics (UIS), 2019.

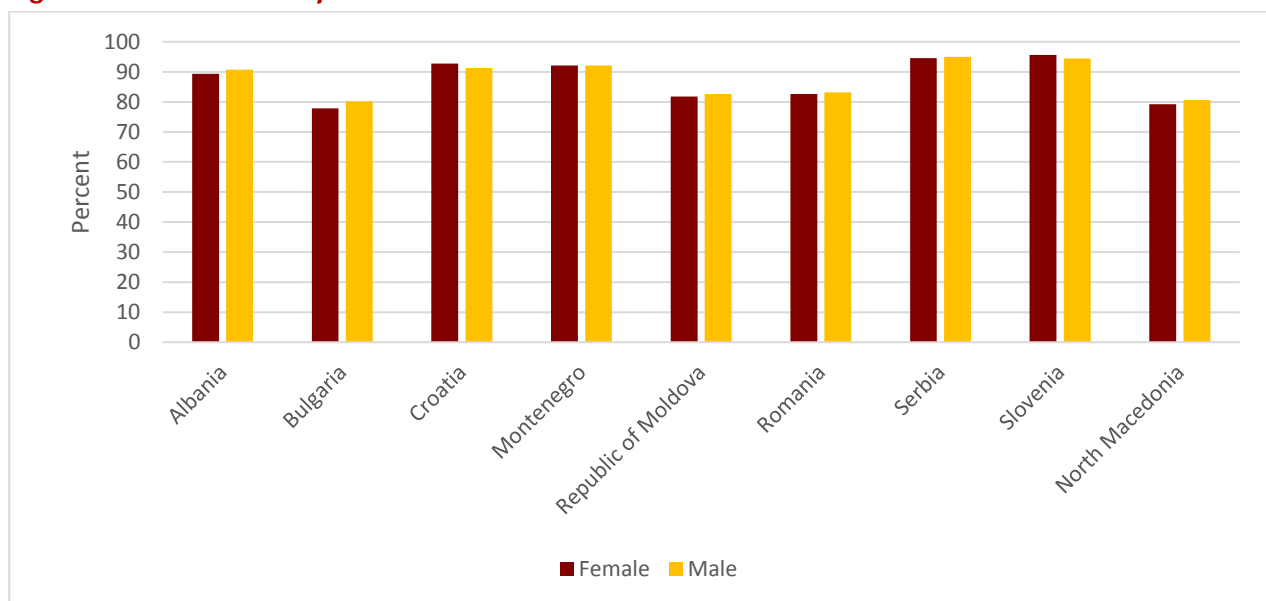
Albeit small overall, gender disparities persist in the region at the pre-primary level. In Albania, for example, the adjusted net enrollment rate one year before primary school is 89.9 percent for boys compared to 89.0 percent for girls, in Croatia it is 97.7 percent for boys compared to 92.9 percent for girls, and in Slovenia, it is 96.1 percent for boys compared to 94.3 percent for girls. Some countries see greater net enrollment for girls at this level, such as Bulgaria (95.8 percent for girls and 95.1 percent for boys) and the Republic of Moldova (96.0 percent for girls and 92.9 percent for boys).

According to UIS data from 2017, only Bulgaria mandates pre-primary education with 2 years being compulsory before primary school. However, countries such as Albania have made plans to implement compulsory pre-primary education in the upcoming years. Doing so throughout the region will help to ensure that all children benefit from the development of socio-emotional, cognitive, communicative, and motor skills and are prepared with a strong foundation for learning and life chances (UNESCO, 2015).

## 1.2 Primary and Secondary Enrollment

In SEE, all net enrollment rates for both boys and girls at the primary level are above 86 percent, in the countries with available data (Annex 1). Enrollment rates provide insight into educational access and can point to both the availability and the use of basic educational services. Although these rates are relatively high overall, they do not represent universal access to education for all children, both boys and girls. Further concern lies beyond primary education in lower and upper secondary, where net enrollment is lower for all students (Figures 3 and 4).

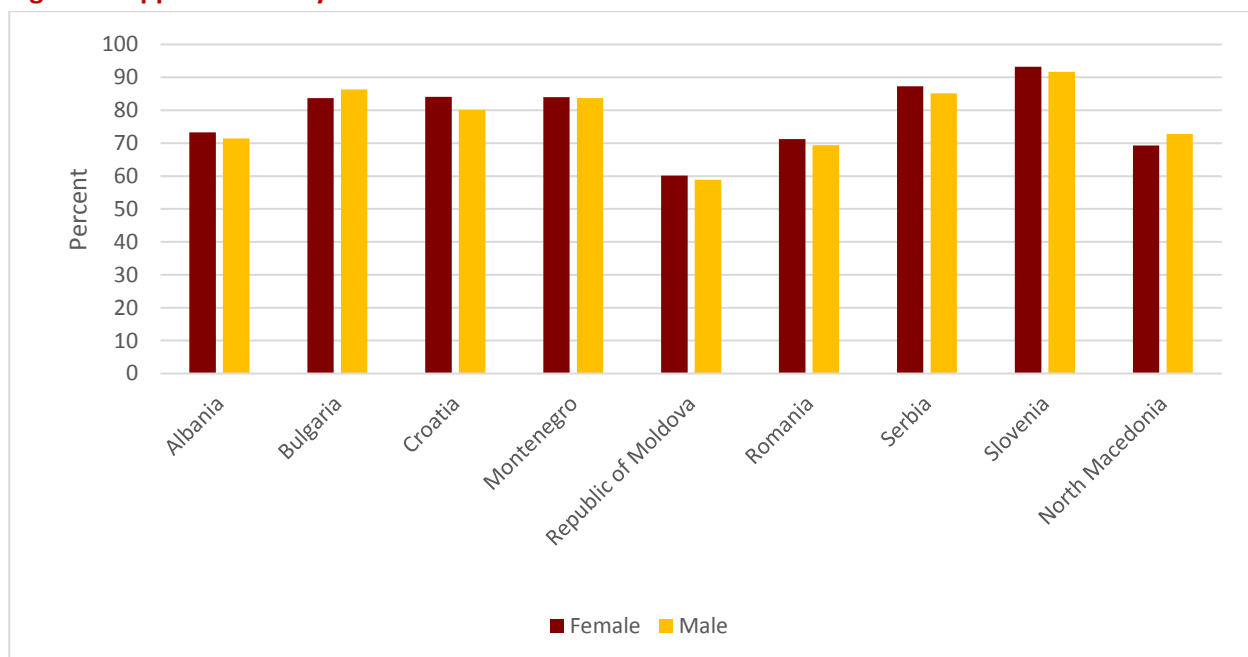
**Figure 3. Lower secondary net enrollment rates**



**Notes:** Data is from the following years: Montenegro, Republic of Moldova, and Serbia: 2017; Bulgaria, Romania, and Slovenia: 2016; Albania and North Macedonia: 2015; Croatia: 2015. Data not available for Bosnia and Herzegovina.

**Source:** UIS, 2019.

**Figure 4. Upper secondary net enrollment rates**



**Notes:** Data from the following years: Albania, Montenegro, and Serbia: 2017; Bulgaria, Croatia, Romania, and Slovenia: 2016; North Macedonia: 2013. Data not available for Bosnia and Herzegovina.

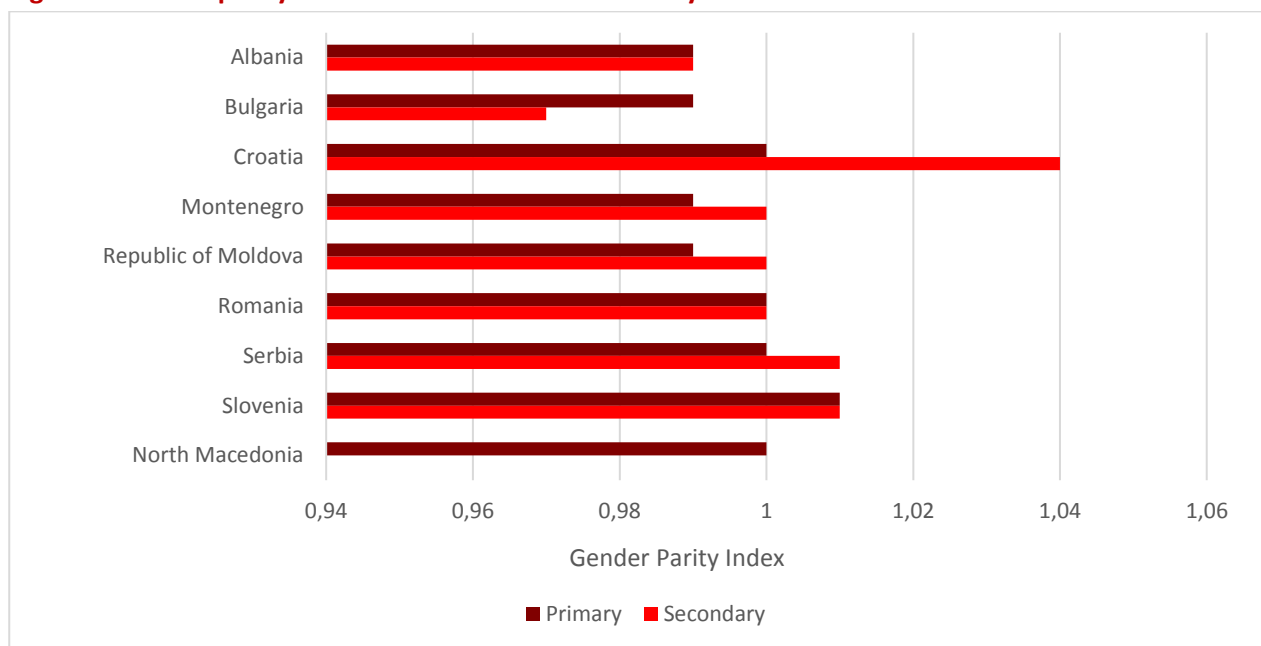
**Source:** UIS, 2019.



These numbers may appear to reflect recent progress in ensuring access to basic education for boys and girls, but net enrollment rates since 2000 show that access has improved very little and in some countries has actually declined for both female and male students (Annex 2). At the primary level, net enrollment increased for both males and females in Slovenia but decreased noticeably for both genders in Bulgaria and the Republic of Moldova. There was also a decline over time in female net enrollment in Romania, but an increase in North Macedonia. At the lower secondary level, Albania and Croatia made improvements in female and male net enrollment, while Slovenia increased its net enrollment rate among girls. In the Republic of Moldova, net enrollment decreased over the last decade for both boys and girls. At the upper secondary level, net enrollment increased for boys and girls in Bulgaria, Croatia, and Serbia, while in Romania, it decreased for both and in the Republic of Moldova it decreased among girls. Thus, while some countries, such as Slovenia have made progress in both enrollment and gender equality, it is important to continue to focus efforts on increasing access in countries that show slower progress.

It is also noteworthy that countries have achieved very close to gender parity in net enrollment at both the primary and secondary levels. Again, however, country-level analysis shows individual needs, as some countries such as Croatia have gender parity at the primary level but higher net enrollment rates among girls than boys at the upper secondary level, while others including Bulgaria have higher enrollment among boys. Nonetheless, countries have come very close to achieving gender parity in net enrollment (Figure 5) and females make up between 45 and 50 percent of all students in basic education.

**Figure 5. Gender parity index for net enrollment rates by educational level**



**Notes:** Data from the following years: Albania, Montenegro, Republic of Moldova, and Serbia: 2017; Bulgaria, Croatia, Romania, and Slovenia: 2016; North Macedonia: 2015. Data not available for Bosnia and Herzegovina. Updated data not available for Secondary level in North Macedonia.

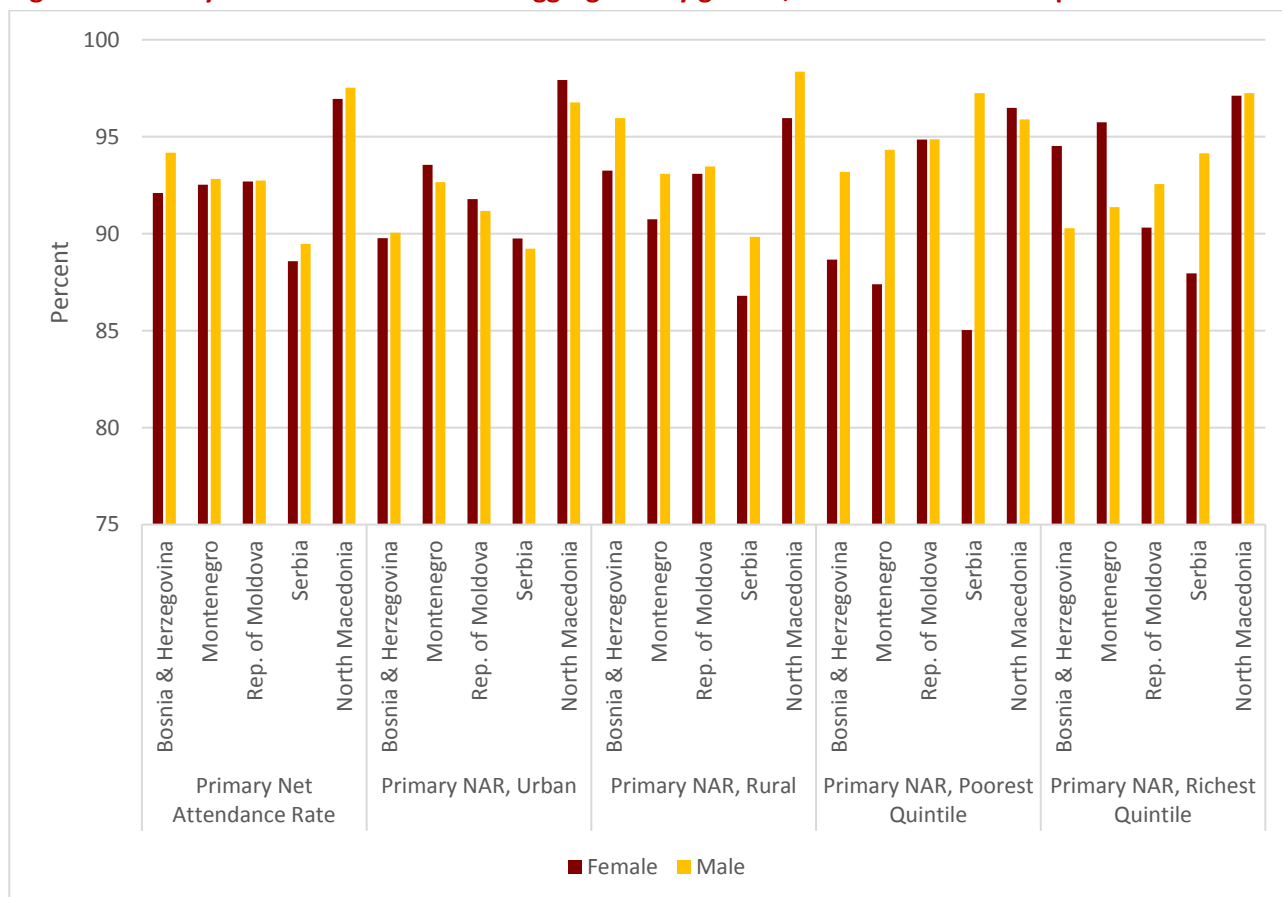
**Source:** UIS, 2019.

### 1.3 Attendance

Although overall, net enrollment rates show that countries in SEE have come close to achieving gender parity in basic education, not all students who enroll in school actually attend school. Net attendance rates therefore give insight that is not provided by enrollment rates regarding participation in education. At the

primary level for the countries with data available, boys who are enrolled attend school at a slightly higher rate than girls who are enrolled. In some countries, such as Bosnia and Herzegovina, this disparity is slightly larger overall. When net attendance rates are disaggregated by urban or rural and by wealth quintile, much larger disparities emerge (Figure 6).

**Figure 6. Primary net attendance rates disaggregated by gender, location and wealth quintile**

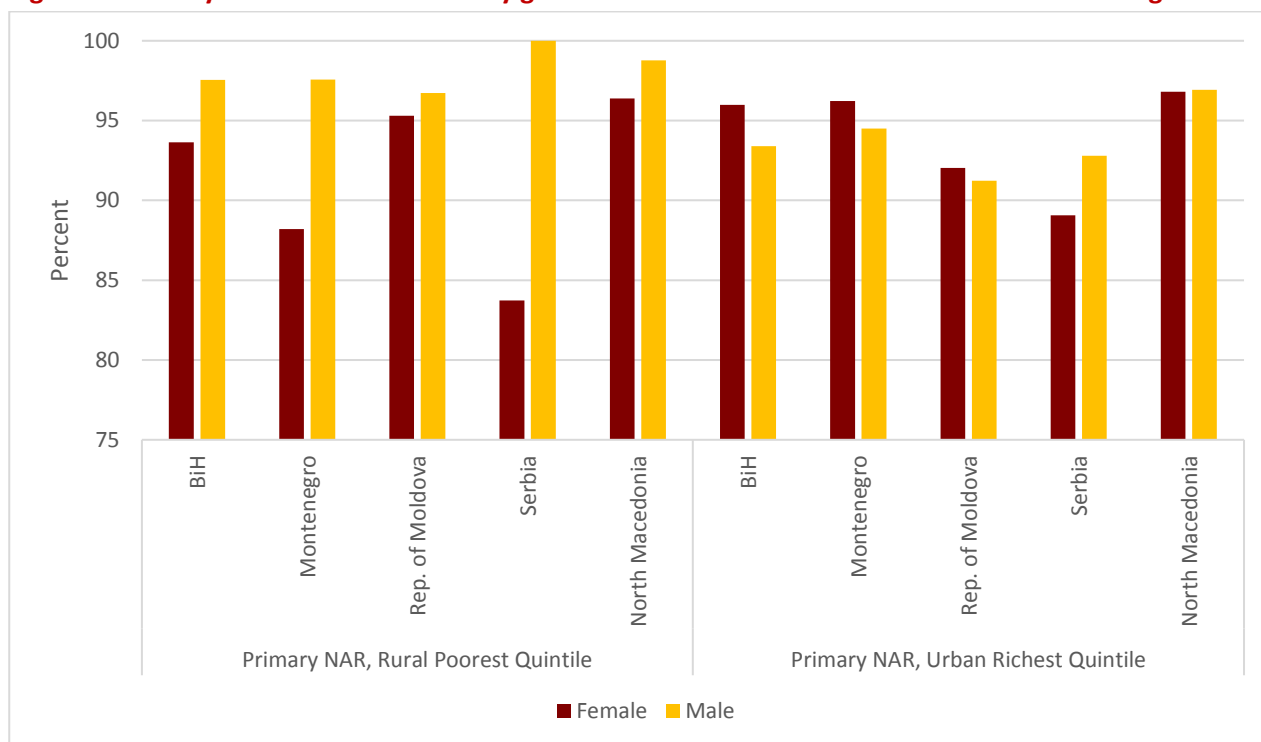


**Notes:** Data refers to most up-to-date figures from between 2011 and 2014 for the countries shown.

**Source:** UIS, 2019.

Overall, small disparities exist between the attendance rates of boys and girls, and only slightly higher attendance rates exist among girls in urban areas in most countries. Among the richest quintile, girls have higher attendance rates than boys in some countries such as Bosnia and Herzegovina and Montenegro, while in others, such as the Republic of Moldova and Serbia, attendance is higher among boys in the richest quintile. However, the gaps are much larger among rural populations and in the poorest quintile. Furthermore, when these two categories overlap (i.e., when the poorest, rural populations are considered), these gaps are even more extreme, particularly in Bosnia and Herzegovina, Montenegro, and Serbia (Figure 7).

**Figure 7. Primary net attendance rates by gender when location and wealth are considered together**



**Notes:** Data refers to most up-to-date figures from between 2011 and 2014 for the countries shown.

**Source:** UIS, 2019.

Similar patterns in disparities are visible at the lower and upper secondary levels as well (See Annex 3), meaning that at all levels, factors besides enrollment are preventing equal participation in education, although the size of the gender disparities vary by country.

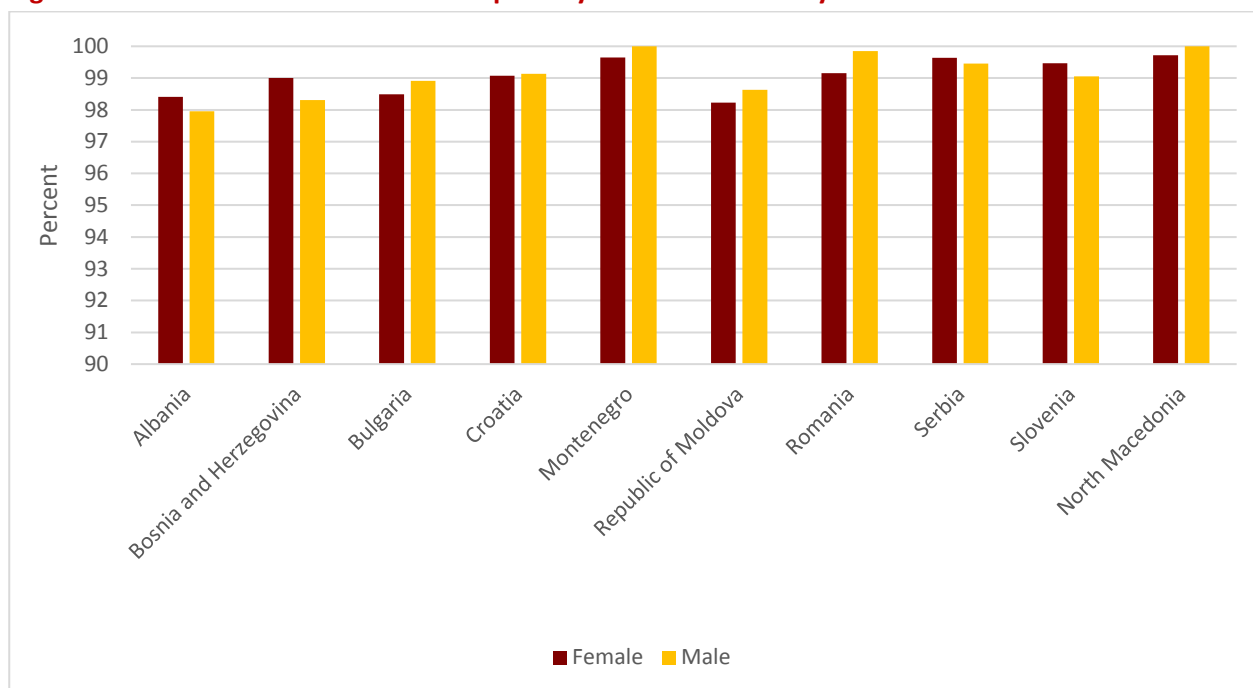
### 1.4 Transition<sup>2</sup>

Most countries in SEE have transition rates that reflect almost total gender parity, with the SEE regional average of the Gender Parity Index being 1.00, but it is worth noting the slight difference in transition rates at the country level (Figure 8). In the Republic of Moldova, for example, approximately 99 percent of males and 98 percent of females effectively transition from primary to lower secondary education.

According to UNESCO Institute of Statistics (2018), high transition rates reflect both high levels of access of transition between education levels and high intake capacity. Inversely, low transition rates may point to deficiencies in the examination system, insufficient intake capacity in the higher level of education, or both, which lead to difficulties in bridging two levels of education.

<sup>2</sup> Per UIS definition: Number of students (either male or female) admitted to the first grade of a higher level of education in a given year, expressed as a percentage of the number of students (either male or female) enrolled in the final grade of the lower level of education in the previous year.

**Figure 8. Effective transition rates from primary to lower secondary**



**Notes:** Data from 2016 except for Bulgaria, Croatia, Romania, and Slovenia (2015) and North Macedonia (2014).

**Source:** UIS, 2019.

While this indicator may help to understand these capacities and highlight problems in bridging two levels of education, it may also be distorted when a system does not distinguish between those who enter a new level of education and those who are repeating a year of schooling, as well as by numbers of those who interrupt their studies after completing a lower level of education and by numbers of migrants entering the school system.

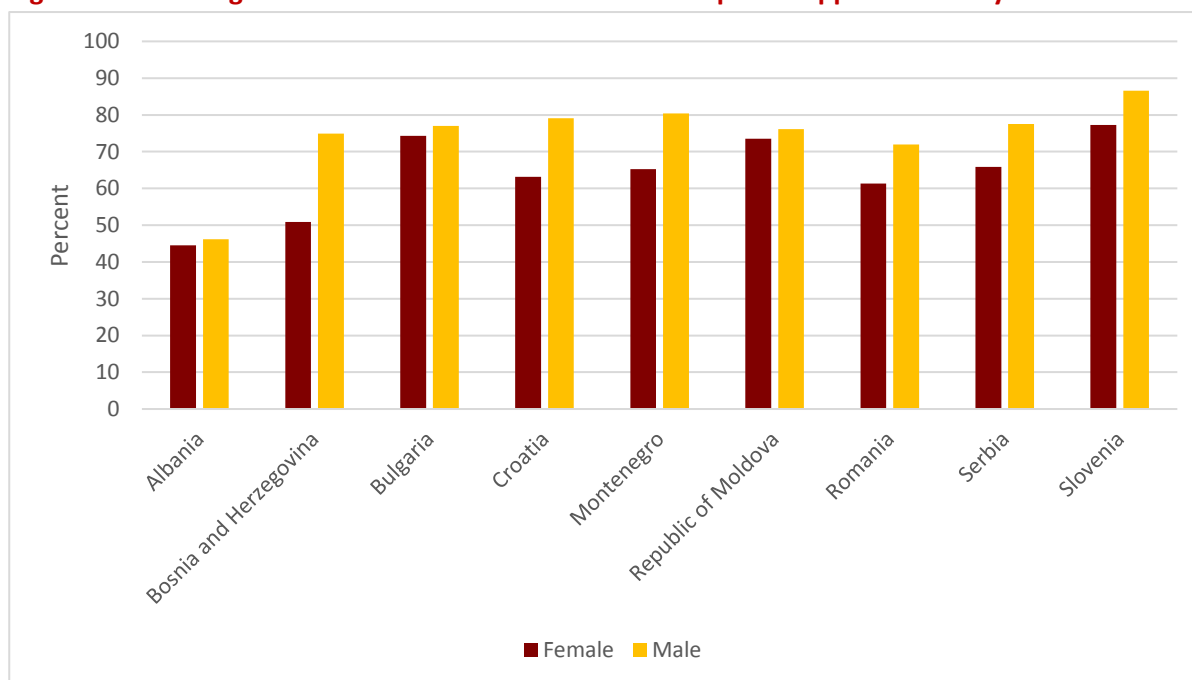
### 1.5 Completion, Attainment, and Out-of-School Children

Enrollment, attendance, and transition do not necessarily translate into completion, which affects the outcomes of education, such as the development of basic skills and employment. Indicator 4.1.4 of SDG4 calls for monitoring completion rates as part of ensuring educational quality and effectiveness. While no indicator specifically calls for the disaggregation by gender of this information, indicator 4.5.1 calls for the disaggregation of all indicators where applicable. On average in SEE, the completion rate in post-secondary education, including short-cycle tertiary programs, bachelor's, and master's programs, is higher among women than men, but completion rate is lower on average among girls in primary and lower secondary in the region.

The same patterns occur with educational attainment. On average in SEE, there are higher attainment rates for women at all levels of post-secondary education, but the gaps are relatively small. The disparities are much larger and in favor of men, however, among those who completed at least basic education. For example, approximately 98 percent of men and 94 percent of women on average in SEE have completed at least primary education. This gap increases among those who completed at least upper secondary education, where the figure is 74 percent of males and 64 percent of females. These gender disparities in educational attainment are even more concerning at the country level, particularly in Bosnia and Herzegovina, where the difference in the proportion of males compared to females completing upper secondary education is 24

percent (Figure 9). Also in Croatia, Montenegro, Romania, and Serbia, many more men than women complete upper secondary education.

**Figure 9. Percentage of men and women who at least completed upper secondary education**



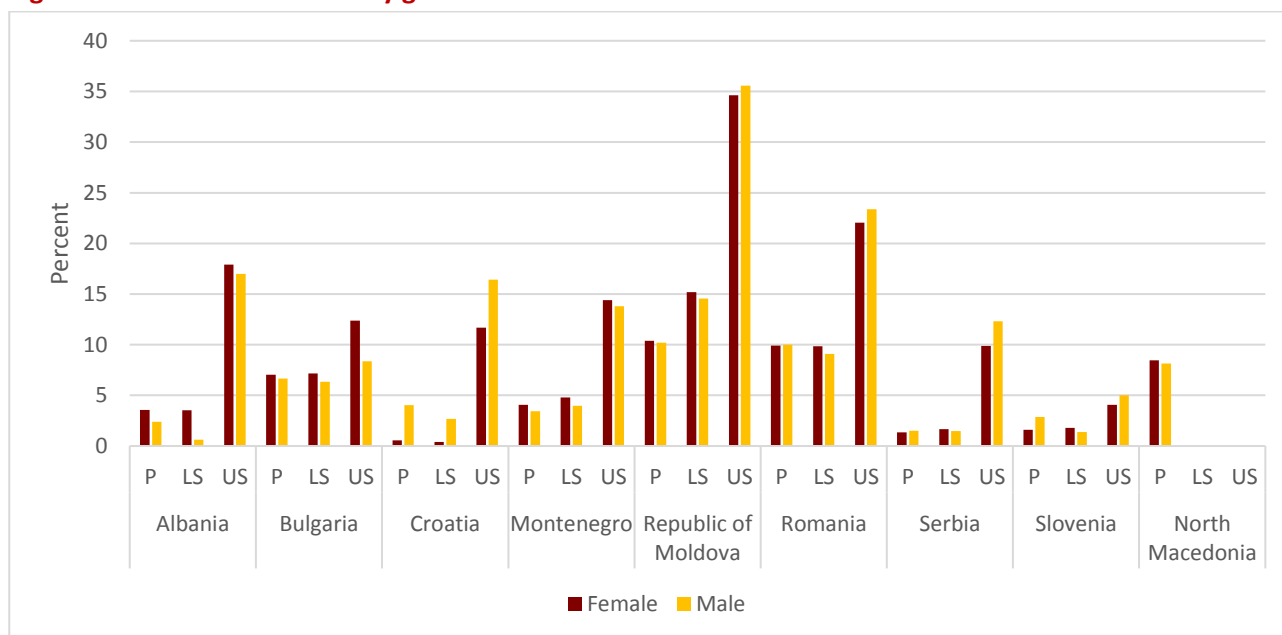
**Notes:** Data from 2016 except for Republic of Moldova (2015); Albania (2012); Croatia and Montenegro (2011). No data available for North Macedonia.

**Source:** UIS, 2019.

Completion is important to ensure that the purposes of education are achieved. Students who do not complete school are more likely to be lacking necessary and basic skills, putting them at risk for a wide array of problems, including unemployment, early marriage, and child trafficking. Thus, indicator 4.1.4 calls for data to be provided on completion rates at the primary and lower and upper secondary levels, and indicator 4.5.1 calls for disaggregation of this information, along with other indicator data. Overall, the number of children who are out of school has decreased over the past decade, but in some countries, this progress has not occurred. In Montenegro, in the Republic of Moldova, in Romania, and in Serbia, the number of out-of-school children of primary school age has increased in the past decade (UNICEF, 2013). Whereas for Bulgaria, the Republic of Moldova, and Romania, the number of out-of-school children at the lower secondary level has grown. There is great regional variation regarding out-of-school children with boys more likely to be out-of-school in some countries and girls in others. However, the largest gender differences in this area are in countries where the likelihood is higher among girls (Figure 10), (UNICEF, 2016).

Children being out-of-school is a form of exclusion, as their opportunities to develop basic skills and competences needed for an independent and fulfilling life are limited. SDG indicator 4.1.5 considers out-of-school children as part of the data needed for ensuring that all girls and boys complete free, equitable, and quality primary and secondary education. Again, as with other indicators, dropout rates by gender depend on country level factors and differ according to country and education level.

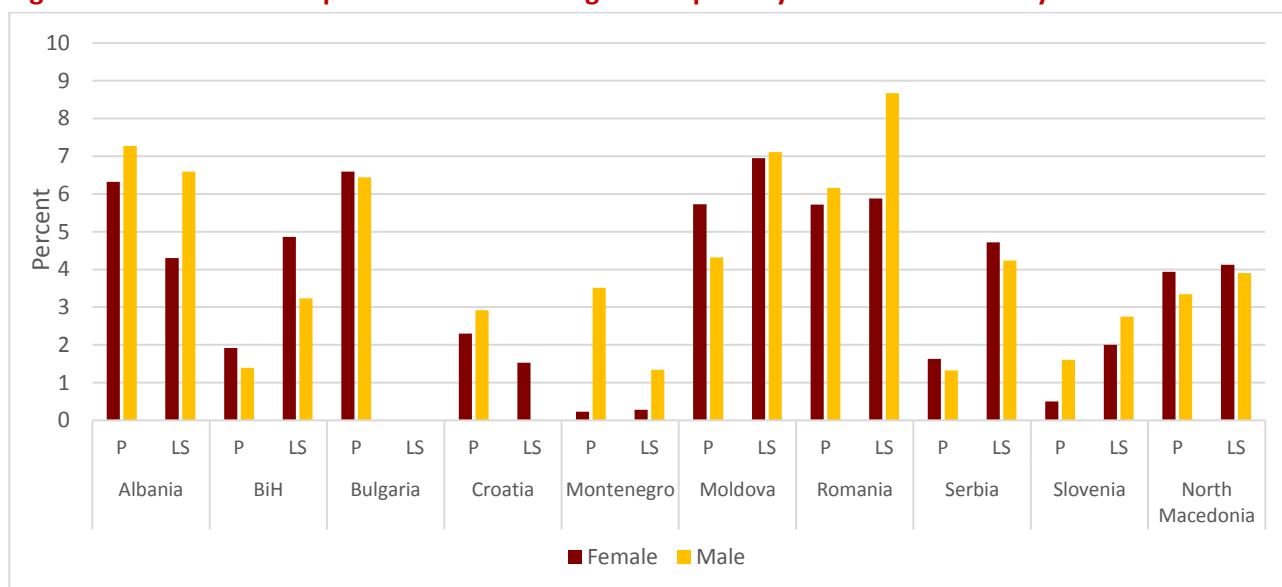
**Figure 10. Out-of-school rate by gender and level of education**



**Notes:** P refers to primary school, LS to lower secondary, and US to upper secondary. Percentages represent most up-to-date data between 2015 and 2017. Data for lower secondary school for Croatia is from 2014. The most recent data for North Macedonia for lower and upper secondary school is from 2005 and thus not shown in the figure.

**Source:** UIS, 2019.

**Figure 11. Cumulative dropout rates to the last grade of primary and lower secondary**



**Notes:** Lower secondary data for Bulgaria excluded to allow graph to show between-country nuances. Lower secondary cumulative dropout rates for Bulgaria (2015) are for females, 58.4 and for males 50.3. Data is from 2016 except for the following: Bulgaria (P), Croatia (P), Romania (LS), Slovenia (P and LS): 2015; North Macedonia (P): 2013); Croatia (LS), Romania (P): 2011); North Macedonia (LS): 2009. BiH represents Bosnia and Herzegovina.

**Source:** UIS, 2019.



Further still, school dropout rates among girls are higher in certain countries such as Bosnia and Herzegovina at the primary and lower secondary levels and Moldova at the primary level (Figure 11). In certain cases, however, the disparity in cumulative dropout rates is significantly noteworthy, as in lower secondary education in Bulgaria where the female dropout rate is 58 percent compared to 50 percent among males.

## 1.6 Gender and Education among Disadvantaged and Minority Populations

SDG indicator 4.5.1 calls for parity indices for all education indicators, including according to gender, as averages and national data often mask subnational inequalities. Among children from ethnic minority groups, with disabilities, and from families in the poorest wealth quintile, gender disparities are often more pronounced. While educational attainment is often higher among girls and school dropout rates higher among boys, other factors come into play in determining these trends. These patterns are often reversed among the Roma populations in SEE, as well as among internally displaced or refugee groups, such as in Albania and Serbia (UNICEF, 2016). Enrollment rates among girls depend also on factors such as geographic location and the economic status of women. Although they surpass those of boys in many situations, enrollment rates are lower in poor and rural areas of SEE countries, mirroring the unequally dispersed economic development and health inequalities in the region. Furthermore, these within-country differences are often greater than between country differences, complicating the issue of addressing each country's needs. More data disaggregated by region (urban vs. rural) will be necessary to highlight patterns in women's enrollment and educational attainment levels in each country.

Like with enrollment rates, many complex factors affect the likelihood of children being out-of-school, but their exclusion from education is higher among ethnic minorities, those with disabilities, and children from poor households. When children belong to more than one of these characteristic groups, however, the risk of being excluded increases and rises again when one belongs to more than two groups (UNICEF, 2013). Thus, it is important to consider not only issues such as the presence of a disability and belonging to a minority population but also how various social characteristics interact.

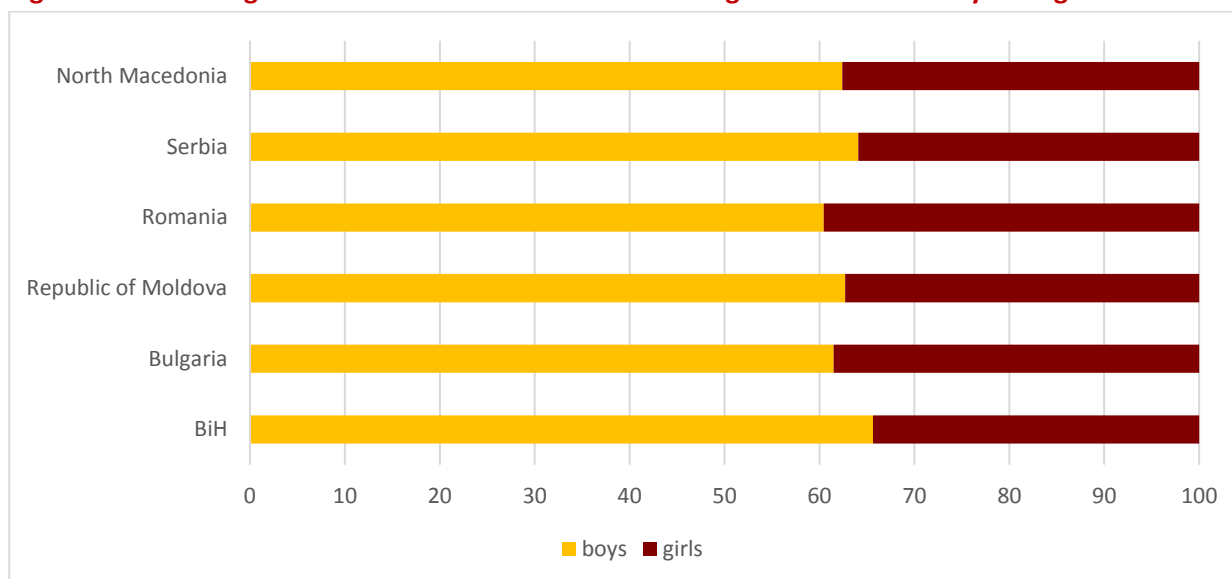
Historically marginalized populations in SEE include those with disabilities. Although recent efforts have focused on inclusion of children with disabilities, in some areas of SEE, these students still attend special schools or special classes within general schools. Progress has been inconsistent, as disability is still often approached through the medical model rather than a social model, which promotes inclusion. In some countries, enrollment in segregated care is increasing despite political reforms that call for greater participation in general schooling. Participation rates among children with disabilities are often low, but when the numbers attending school<sup>3</sup> are disaggregated by gender, another problem becomes visible. In SEE on average<sup>4</sup>, just 37.2% of the children with disabilities who attend school are female, showing that exclusion from formal learning is high among girls with disabilities. Data varies by country, but this percentage is never higher than 40 percent, with the lowest being 34 percent among the countries for whom this data is available (Figure 12). More and consistent data are needed, however, to ensure that education facilities are both disability and gender sensitive, as called for in SDG target 4.a.

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<sup>3</sup> 'School' refers to formal education without distinction between inclusive or segregated classes.

<sup>4</sup> The average of SEE used data from: Bosnia and Herzegovina, Bulgaria, the Republic of Moldova, Romania, Serbia, and North Macedonia. Albania, Croatia, Montenegro, and Slovenia were not included in the calculation due to missing, outdated, not disaggregated, or inaccurate data.

**Figure 12. Percentage of students with disabilities attending school who are boys and girls**



**Note:** Data not available for Albania, Croatia, Montenegro, or Slovenia

**Source:** UNICEF, 2018a.

Among Roma populations, gender differences are more pronounced (UNICEF, 2013). Consistent and reliable educational data are scarcely available, but Roma participate in formal education at much lower rates than their non-Roma peers and have higher dropout rates among those who do enroll. Roma girls also have a very low transition rate to upper secondary education (UNICEF, 2016). Roma children are often targets of discrimination, and they are more frequently assigned to special classrooms or schools, as their cultural practices are often misunderstood. In North Macedonia, the out-of-school rate is much higher among Roma girls than among Roma boys (UNICEF, 2013), attributable at least in part to gender discrimination and dynamics in Roma culture.

# Chapter 2:

## Educational Quality and Outcomes



Despite enrollment rates, participation in education is not enough to ensure quality learning. Thus, Chapter 2 discusses gender equality in terms of educational quality and outcomes of education.

### 2.1 Minimum Proficiency among Students in School

The first indicator of Target 4.1 calls for the proportion of students by gender achieving minimum proficiency in math and reading in Grade 2 or 3 and at the end of primary and lower secondary education. The data<sup>5</sup> show that many who are enrolled are still excluded from learning. Children who are not learning in school are more likely to drop out than students who perform better (UNICEF, 2013).

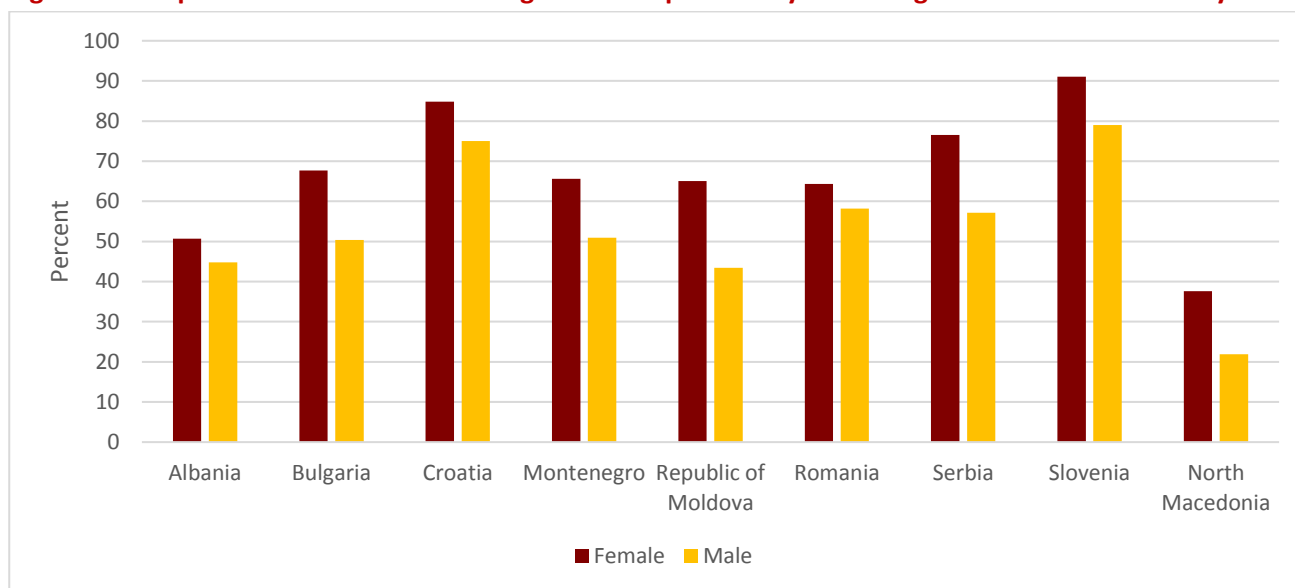
Monitoring achievement of basic proficiency in reading and math at the primary level is difficult in SEE due to a lack of data disaggregated by gender. Only Romania, Slovenia, and North Macedonia provide disaggregated data for proficiency in reading in grade 2 or 3 of primary school, while Bulgaria, Croatia, and the Republic of Moldova provide this data at the end of primary education, but none of this data is more recent than 2011. Regarding math, only three countries, Bulgaria, Croatia, and Serbia, provide up-to-date data on proficiency at the end of primary school.

At the lower secondary level, data shows gender disparity at the expense of boys in reading achievement. These patterns are consistent across the region (Figure 13), as well as with the global average. Nonetheless, data is slightly outdated, with the most recent being from 2015.

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<sup>5</sup> The current SDG database measure of minimum proficiency comes from regional or international learning assessments and thus country-level data may not be comparable

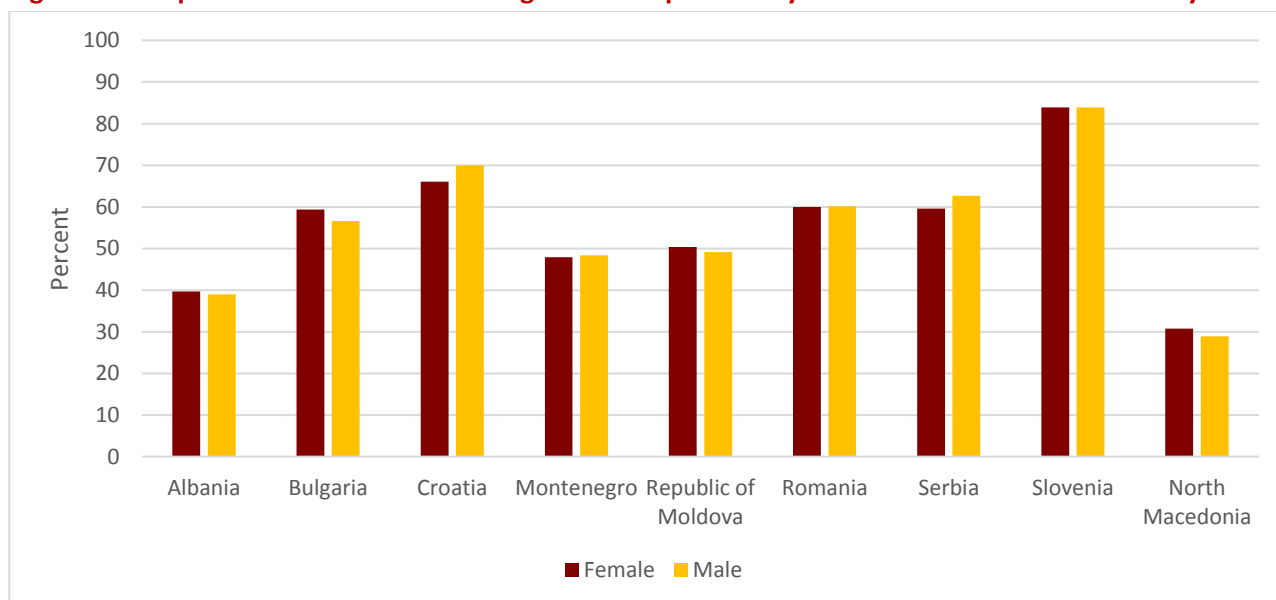
**Figure 13. Proportion of students achieving minimum proficiency in reading: End of lower secondary**



**Notes:** Data not available for Bosnia and Herzegovina. Data from 2015 except for Albania and Serbia (2012).  
**Source:** UIS, 2019.

The *GEM Report 2018 Gender Review* discusses new insights into the interpretation of such disparities, as these gaps may close during young adulthood (UNESCO, 2018a). Gender gaps, albeit minimal, exist also in mathematics proficiency at the end of lower secondary education (Figure 14), but they change in favor of boys or girls depending on the country. As these gaps are related to reading, boys end up catching up to and surpassing girls in terms of skills in this area (UNESCO, 2018a).

**Figure 14. Proportion of students achieving minimum proficiency in math: End of lower secondary**



**Notes:** Data not available for Bosnia and Herzegovina. Data from 2015 except for Albania and Serbia (2012).  
**Source:** UIS, 2019.

It is important to remember that these proportions only represent the students who enrolled in school and not out-of-school children and youth. Thus, while the percentages of students achieving minimum proficiency may seem low, they do not provide an accurate picture of skills among the population. Those students who

drop out or never enroll may not have the opportunity to reach minimum proficiency but are not included in these data. Therefore, the percentage of all children who are in the lower secondary age group and have achieved minimum proficiency is likely much lower.

Similar to its interpretation of literacy development, the *GEM Report 2018 Gender Review* also discusses that numeracy skills continue to develop after compulsory education, influenced by academic and employment choices made by young people, making gender disparities in minimal achievement a more complicated issue than these discrepancies suggest. Considering that more women than men graduate from Natural Sciences, Mathematics, and Statistics programs, this represents that girls are pursuing opportunities beyond lower secondary to develop these skills and likely that doing so helps to bridge this gap later on. It is therefore necessary for gender equality to consider also the ways in which students engage with such subjects and materials in the classroom, as well as the gender norms, values, and stereotypes transmitted through literacy and numeracy materials and gender-influenced pedagogies which may affect not only proficiency but also future decisions to further engage with these subjects.

## 2.2 Performance on International Large-Scale Assessments

International large-scale assessments provide country data on the performance of students in subjects such as reading, math, and science. While the Trends in International Mathematics and Science Study (TIMSS) addresses students learning according to the curriculum, PISA assesses instead students' ability to apply what they have learned in school to real life scenarios. TIMSS is conducted for students in grade 4 and grade 8 in both math and science. Few countries in SEE participate in TIMSS for grade 4, making regional comparison of gender disparity in achievement difficult. Among the four countries that do participate, girls in Bulgaria and Serbia outperform boys in both mathematics and science, while boys in Croatia and Slovenia outperform girls in both subjects. In grade 8, where only Slovenia took part in 2015, boys slightly outperformed girls in math and science (See Annex 4), although this gap was slightly in favor of girls in most participating countries of SEE in previous years.

In PISA, which is administered to 15-year-olds to evaluate their ability to apply competencies in reading, math, and science to real life problems, similar gender patterns are noticeable. In 2015, girls outperformed boys in math in Albania, Bulgaria, the Republic of Moldova, and North Macedonia. Boys outperformed girls in Croatia, Serbia (in 2012), and Slovenia. In all countries of SEE in reading, females outperform males by, on average, 41 points in PISA 2015. The gap is persistent and in favor of females since these countries began participating in PISA, some more recently than others (See Annex 8). While some countries have begun to narrow the gap between girls' and boys' achievement on PISA reading tests, such as Croatia where girls scored 50 points higher than boys in 2006 and 26 points higher in 2015, these disparities are still large.

In Science, girls in 2015 in SEE outperformed boys by on average 9 points. Croatia was the only country in which the boys outperformed the girls, by approximately 6 points (Table 2). Despite overall average scores which show that girls perform better, all countries have more boys than girls among top performers in Science in PISA 2015, which reflects a global pattern as well.

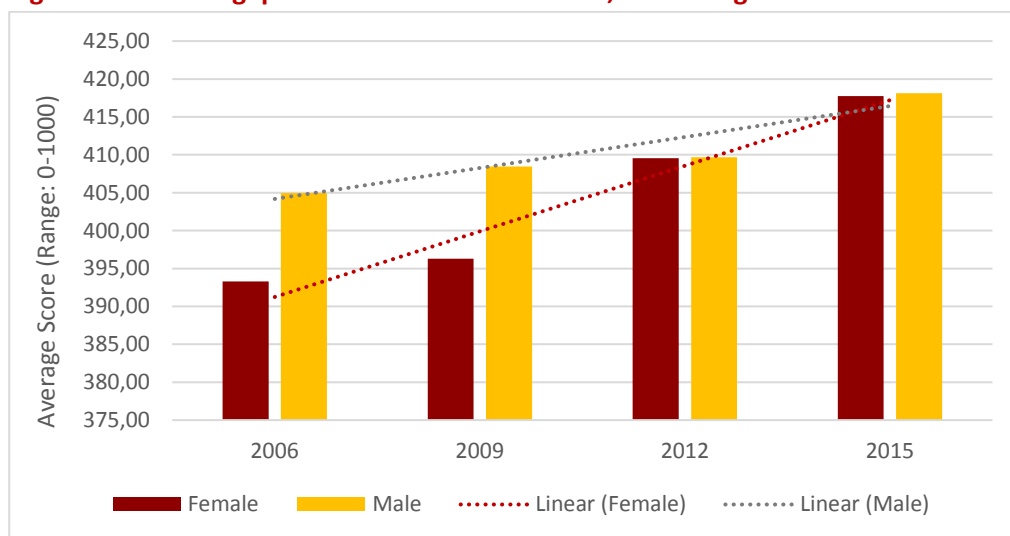
**Table 2. PISA 2015 performance by subject and gender**

	Math		Reading		Science	
	Female	Male	Female	Male	Female	Male
<b>Albania</b>	418	409	435	376	439	415
<b>Bulgaria</b>	442	440	457	409	454	438
<b>Croatia</b>	458	471	500	473	473	478
<b>Montenegro</b>	418	418	444	410	414	409
<b>Republic of Moldova</b>	421	419	442	390	431	425
<b>Romania</b>	444	444	442	425	438	432
<b>Serbia (2012)</b>	444	453	469	423	447	443
<b>Slovenia</b>	508	512	528	479	516	510
<b>North Macedonia</b>	375	368	376	330	394	374
<b>OECD Average</b>	486	494	506	479	491	495

*Source: National Center for Education Statistics (IES PISA - Select Criteria), 2018.*

It is also useful to look at country-level trends over time, which can show which countries have made progress in closing the gender gap and which ones have not. For example, the gap between females and males in math performance has become much smaller since 2006 in Montenegro but male scores in math have consistently remained approximately 13 points higher than females in Croatia (Figures 15 and 16). Thus, in countries where gender gaps persist, targeted efforts may be needed to address gender equity in learning.

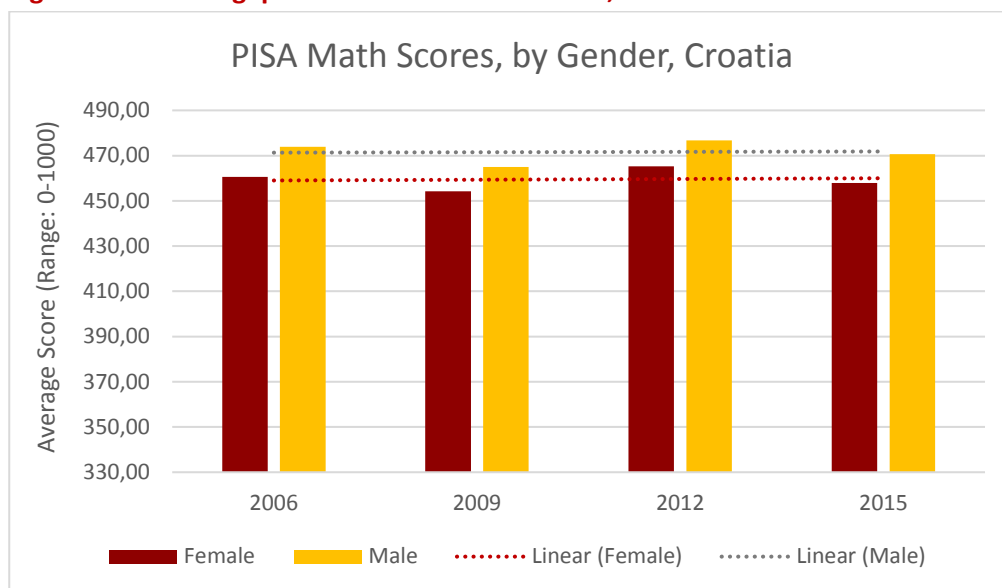
**Figure 15. Gender gap trends in PISA math scores, Montenegro**



*Source: National Center for Education Statistics, 2018.*



**Figure 16. Gender gap trends in PISA math scores, Croatia**



**Source:** National Center for Education Statistics, 2018.

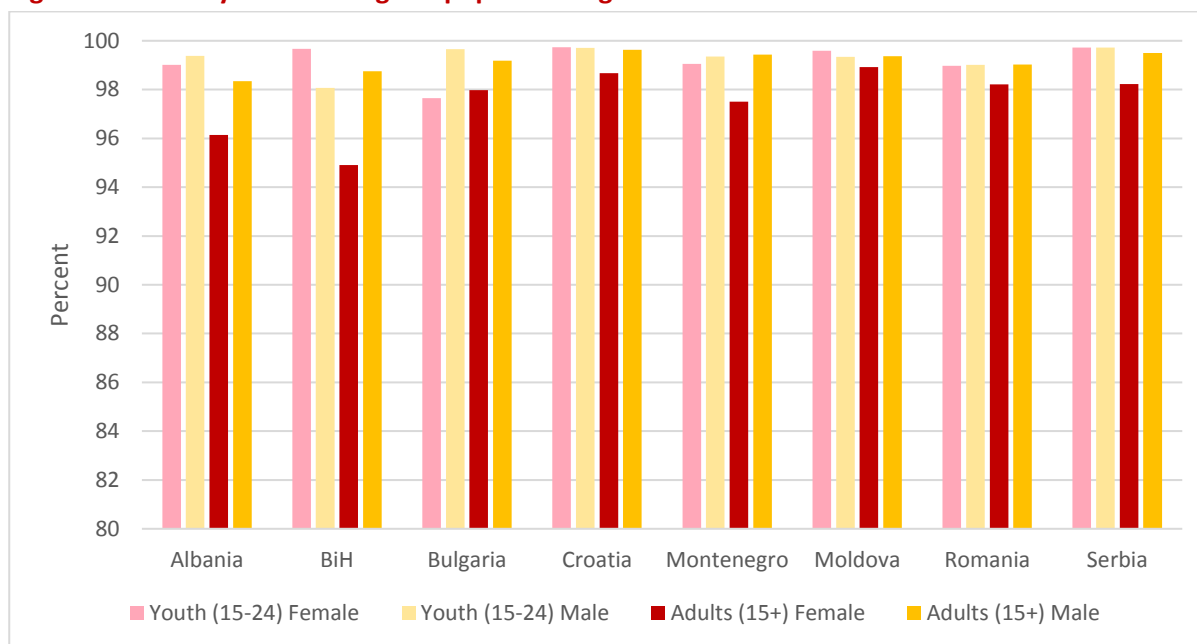
Although overall, the slight gender disparities in performance seem to be in favor of girls, these results are concerning for a different reason than just scores. Despite the fact that girls slightly outperform boys in every country except Croatia, they are still under-represented in STEM fields in higher education and the workforce compared to boys, and thus stereotypes, expectations, and cultural norms must be more deeply explored to encourage girls to enter these fields, considering that it is not a question of aptitude. These results, therefore, highlight a need to focus not only on achievement scores but also on various other factors that deter girls from entering STEM fields (UNESCO, 2017a).

### 2.3 Basic Skills: Literacy and ICT

One of the purposes of education is to ensure that individuals have attained a level of proficiency with skills that enable them to participate in the labor force. However, in the countries of SEE, men consistently participate in the labor force at much higher rates than women do, with participation rates differing by gender by as much as 26 percentage points in North Macedonia and 24 percentage points in Bosnia and Herzegovina (Annex 5). Data on skills possessed by a country's adult population thus gives insight into the effectiveness of a country's education system and the need for lifelong learning for adults who have already left formal education but may still lack the necessary skills to be meaningfully employed or participate in societal life.

Considering these important consequences, SDG target 4.6 focuses on literacy for both male and female youth and adults. The literacy rate among females above the age of 15 is consistently lower than that of males (Figure 17). Among the population aged 15 to 24, however, the gap is relatively small. It is in favor of females aged 15 to 24 in some countries (Bosnia and Herzegovina and the Republic of Moldova), and in favor of males in others (Albania, Bulgaria, Montenegro).

**Figure 17. Literacy rates among the population age 15+**



**Notes:** Data are not available for Slovenia or North Macedonia.

**Source:** UIS, 2018.

This gap is never more than two percentage points among the population age 15 to 24, which shows that the education systems have made some progress in ensuring parity in basic literacy skills between male and female students. It also shows, however, that lifelong learning opportunities for the adult population can specifically aim to bridge the gap in literacy skills between men and women, especially in countries like Bosnia and Herzegovina and Montenegro.

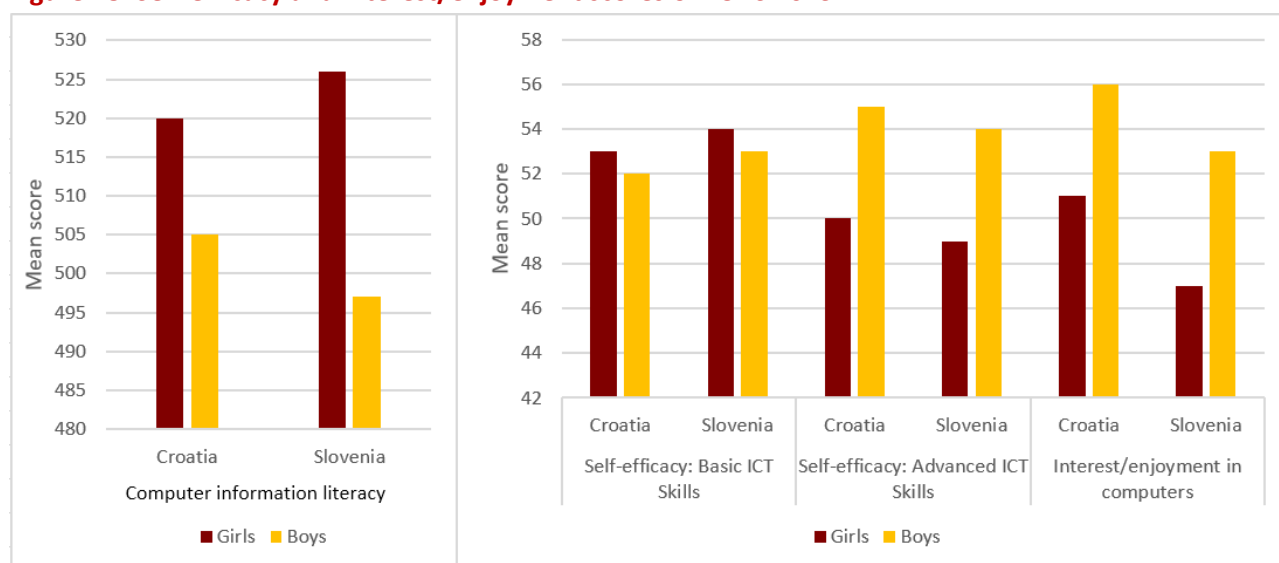
While adult literacy data is available, it does not entirely represent the range of skills needed for full participation in twenty-first century society. As schools increase their focus on preparing students with ICT skills, it is important to monitor whether or not education in this subject and field is having its desired impact. Data are therefore necessary for the proportion of youth and adults with ICT skills, as is called for by SDG indicator 4.4.1. Combined with information related to SDG target 5.b on the use of ICT to promote the empowerment of women to evaluate progress and make decisions about policies that could increase the effectiveness of ICT education. However, this data is missing in a large number of SEE countries, and when it is available, it is not disaggregated by gender. Among countries who provide the data, the data do not show adequate preparation, as in Bulgaria and North Macedonia, 40 percent or less of youth and adults have copied or moved a file folder. In Montenegro, this number rises to approximately 69 percent, but when considering the proportion who have created electronic presentations with presentation software, the numbers are dramatically lower (e.g., approximately 13 percent in Romania and 30 percent in Slovenia). Although disaggregated data will require more work, it is important to consider how these proportions may be different among males and females, if male and female students are given equal opportunities to access classroom technology when it is available, and if teachers encourage male and female students equally to develop these skills.

The International Computer and Information Literacy Study (ICILS) provides further insight into students' preparation for study, work, and life in the digital age by measuring their computer and information literacy. It evaluates the ability to collect, manage, produce, and exchange information among a target population of students in their eighth year of schooling (13.5 years or older). It also considers other factors such as learner

characteristics, school and out-of-school environments, and the wider community context. Of the countries covered in this report, Croatia and Slovenia participated in ICILS in 2013. In Croatia, the mean score for boys was 505 and for girls was 520, while in Slovenia the mean score for boys was 497 and 526 for girls.

Despite these large and statistically significant gender differences in favor of girls, the patterns are different when it comes to self-efficacy in ICT skills. Girls scored one point higher than boys in both Croatia and Slovenia on basic ICT skills. On advanced ICT skills, however, boys scored 5 points higher than girls in both countries (compared to a 4 point difference among ICILS 2013 countries overall). Similar patterns are reflected in gender differences in students' interest and enjoyment in using computers (Figure 18). Thus, other factors besides competency should be considered if girls' interest and self-efficacy in these areas are to improve.

**Figure 18. Self-efficacy and interest/enjoyment scores on ICILS 2013**



**Source:** International Association for the Evaluation of Education Achievement (IEA), 2014.

As ICT skills are increasingly required in education and the workplace, it is important to ensure that both men and women are equally competent in these skills if gender equity in employment opportunities is to be achieved. This requires also that girls and boys are given equal opportunities not only to develop these skills but also to develop the interest and confidence needed to use them. Recommendations for the role that the education system can play in this regard are given in Chapter 6.

# Chapter 3:

## Tertiary Education, VET, STEM, and Research

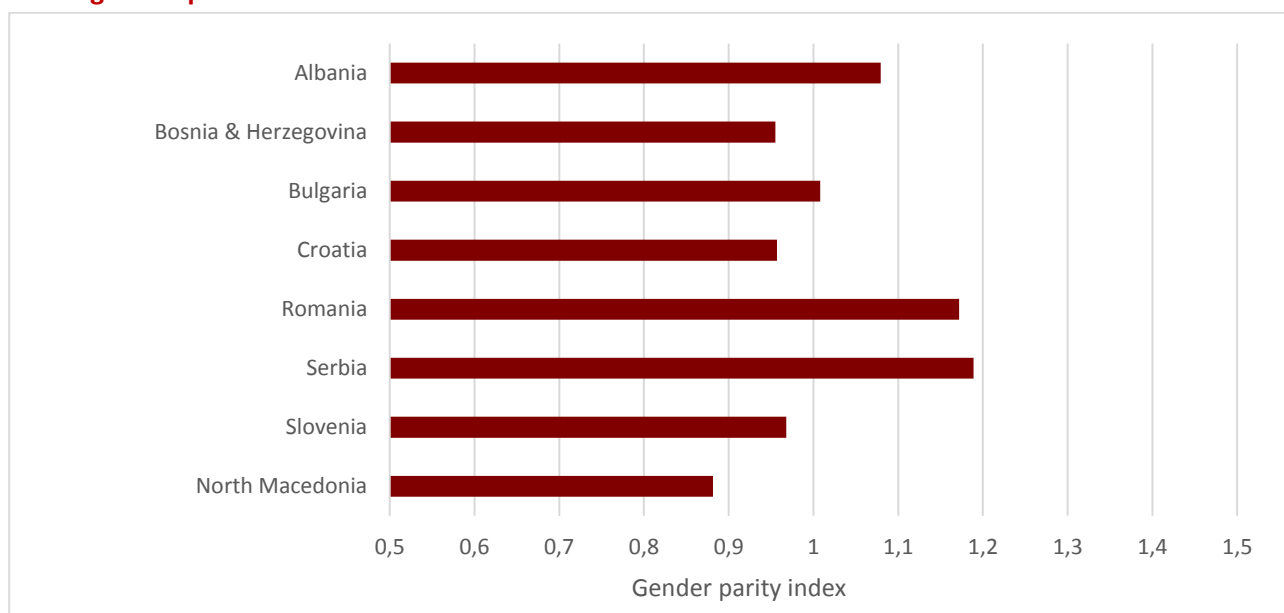


Despite STEM fields reflecting progress toward gender equality throughout the region, clear gender disparities still exist with implications for women’s educational and employment opportunities, as well as consequences for the region’s economic development. Chapter 3 explores current trends regarding the intersection of gender equality and women’s participation in post-secondary education, STEM, and research.

### 3.1 Gender Parity in Formal and non-Formal Education and Training

Target 4.3 of SDG4 focuses on equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university. Thus, the first indicator for this target looks at participation rates of youth and adults in formal and non-formal education and training the previous 12 months. The regional average for both genders is 20 percent of youth and adults for countries with available data, as is the average for females, while the regional average for males is just slightly lower at 19.9 percent. While in some countries participation rates exceed the regional average, others have rates that are much lower than the average overall, including Albania (9.2 percent), Bosnia and Herzegovina (8.7 percent), Romania (7.0 percent), and North Macedonia (12.7 percent). Nonetheless, female participation rates in Albania, Bulgaria, Romania, and Serbia exceed those of males, and gender parity is high (0.88 or higher) throughout the region (Figure 19).

**Figure 19. Gender parity for participation rate of youth and adults in formal and non-formal education and training in the previous 12 months**



**Notes:** Calculated based on data from 2016. Data not available for Montenegro or the Republic of Moldova.

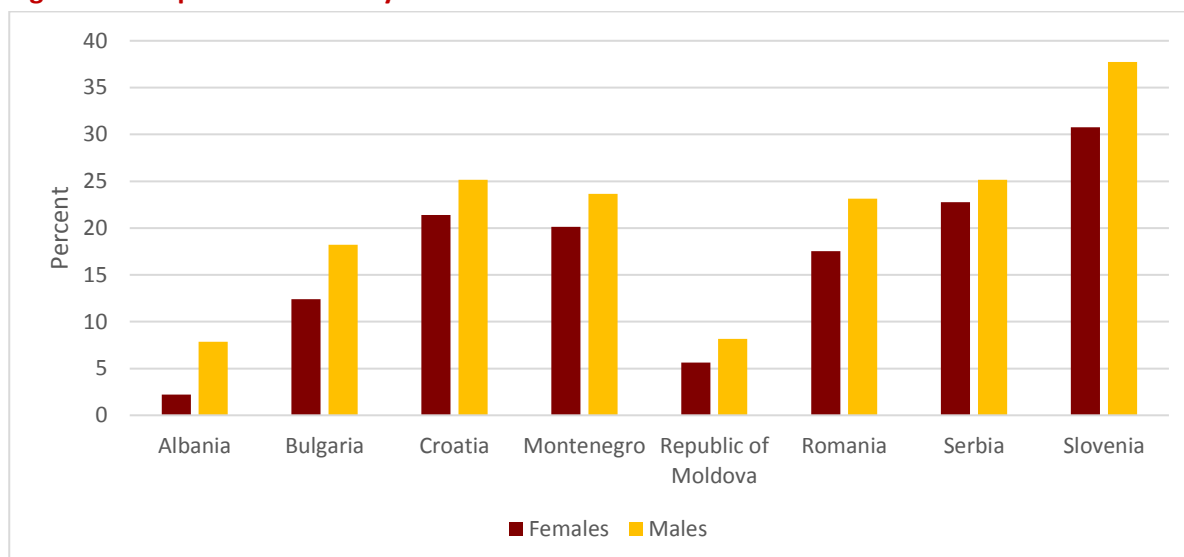
**Source:** UIS, 2018.

Some countries, however, have yet to achieve gender parity in this regard, including in places where overall participation is high. For example, in Croatia and Slovenia, participation rates in formal and non-formal education and training are high (31.8 percent and 46.1 percent overall, respectively) but still lower for females than for males. Ensuring equal access to high-quality formal and non-formal education and training is key in ensuring that women and men have equal access to the labor market, opportunities for economic independence, and access to continuing education.

Few and small increases in the proportion of 15 to 24 year-olds enrolled in vocational education have been seen across the region within the last decade, with 18.7 percent as the regional average<sup>6</sup>. However, a larger percentage of men than women ages 15 to 24 are enrolled in vocational education in all countries with available data (Figure 20). In order to support sustainable economic growth in SEE, countries should aim to ensure that educational opportunities available to those preparing to enter the workforce align with the demands of the countries' economies.

<sup>6</sup> Calculated using the most recent data from 2017 or 2016 as available from the following countries: Albania, Bulgaria, Croatia, Montenegro, Republic of Moldova, Serbia, and Slovenia.

**Figure 20. Proportion of 15-24 year-olds enrolled in vocational education**

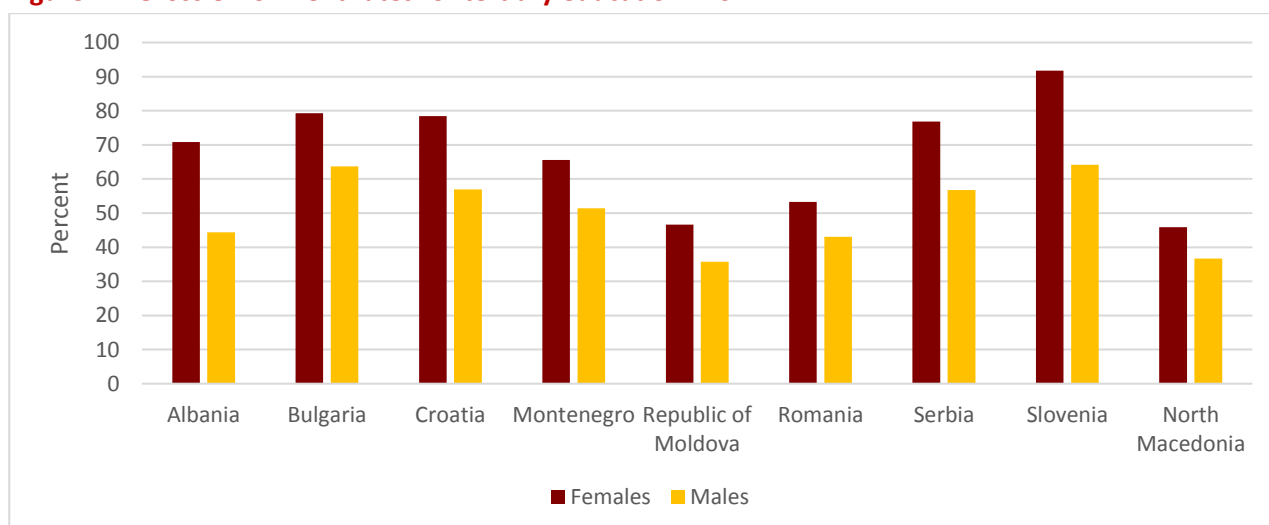


**Notes:** Data is from 2017 except the following: Bulgaria, Croatia, Romania, and Slovenia: 2016; North Macedonia: 2015. Data not available for Bosnia and Herzegovina.

**Source:** UIS, 2019.

Worldwide, only 4 percent of countries have achieved gender parity in tertiary education, with more females than males enrolled in almost all regions. SEE reflects similar patterns, although the gap between male and female enrollment is smaller in some SEE countries than others. Gross enrollment rates in tertiary education have, on average, increased across the region in the past decade, and quite significantly so. For example, for overall gross enrollment in Albania, Bulgaria, and Croatia have increased from approximately 34 percent, 54 percent, and 49 percent in 2009 to 57 percent (in 2017), 71 percent (in 2016), and 67 percent (in 2016), respectively. Some countries have seen decreases, however, such as Romania where enrollment fell from 70 percent in 2009 to 48 percent in 2016 and Slovenia where it decreased from 86 percent in 2009 to 78 percent in 2016. Nonetheless, gender disparities in gross enrollment rates for tertiary education are largely in favor of women in every country with available data (Figure 21).

**Figure 21. Gross enrollment rates for tertiary education in SEE**



**Notes:** Data is from 2017 except the following: Bulgaria, Croatia, Romania, and Slovenia: 2016; North Macedonia: 2015. Data not available for Bosnia and Herzegovina.

**Source:** UIS, 2019.

### 3.2 Women in STEM Fields

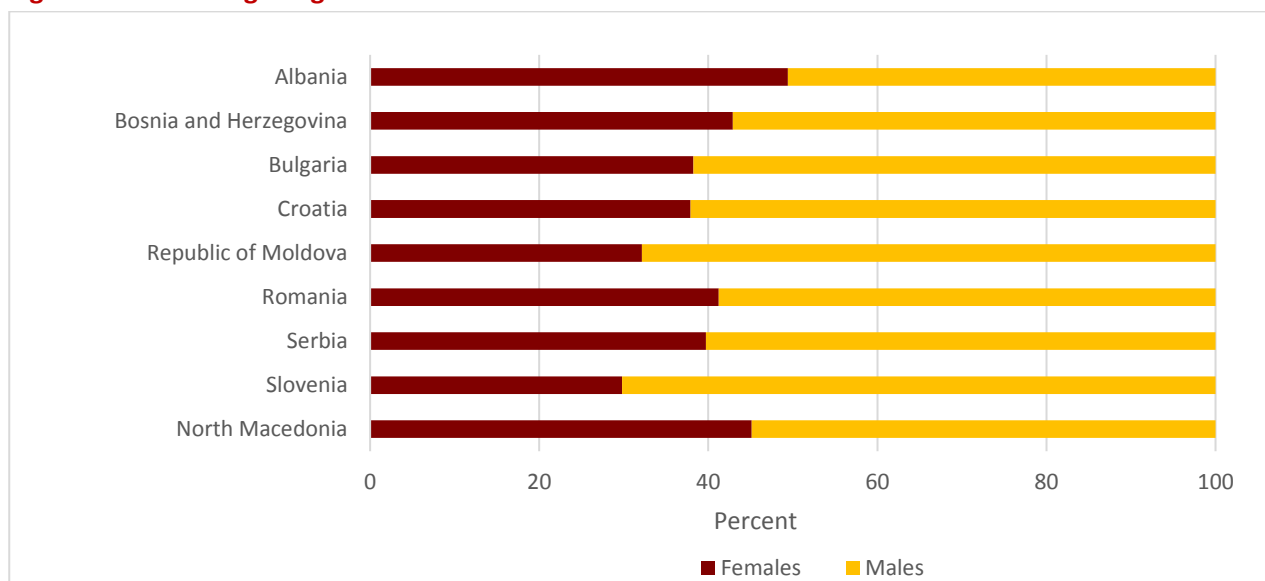
Despite women's progress in educational attainment, discrimination, bias, and social norms persist that influence their chosen academic and career paths. The under-representation of women in STEM fields impedes sustainable and equitable development, as there is a need for diverse viewpoints, increased creativity, and a representation of girls' and women's needs in these fields. Similarly, gender disparities in STEM in academia and employment perpetuate status and income inequalities (UNESCO, 2017a). As much as gender and education are integral to the other SDGs, STEM plays a key role in their achievement, as these fields can provide knowledge, skills, attitudes, and behaviors for sustainable development.

Gender disparities persist, with girls beginning to lose interest at an early age and pursuing STEM opportunities at a lower rate than boys. In Slovenia, for example, while 60 percent of the students taking advanced mathematics courses are female, girls account for only 30 percent of the students studying advanced physics (UNESCO, 2017a). It is important, therefore, that schools encourage female enrollment in STEM courses and that these courses acknowledge and encourage female achievement. UNESCO (2017a) reports that in OECD countries, according to PISA 2015 results, higher levels of achievement in science are associated with higher expectations of working in science fields.

Despite higher enrollment and completion among women in tertiary education in general, fewer women than men complete STEM degrees in most countries of SEE (Figure 22). The percentage of female graduates from STEM fields is on average approximately 40 percent, meaning that males still represent 60 percent of the graduates from STEM fields in SEE.

According to the UNESCO's (2017) report *Cracking the code: Girls' and women's education in science, technology, engineering and mathematics*, the percentage of women in STEM varies globally, and in some SEE countries, the percentage of female graduates is as high as 49 percent (Albania). Furthermore, the region has a higher percentage of female graduates from STEM fields than many other countries and regions, although progress over time has been slow (Annex 6).

**Figure 22. Percentage of graduates from STEM fields who are male and who are female**

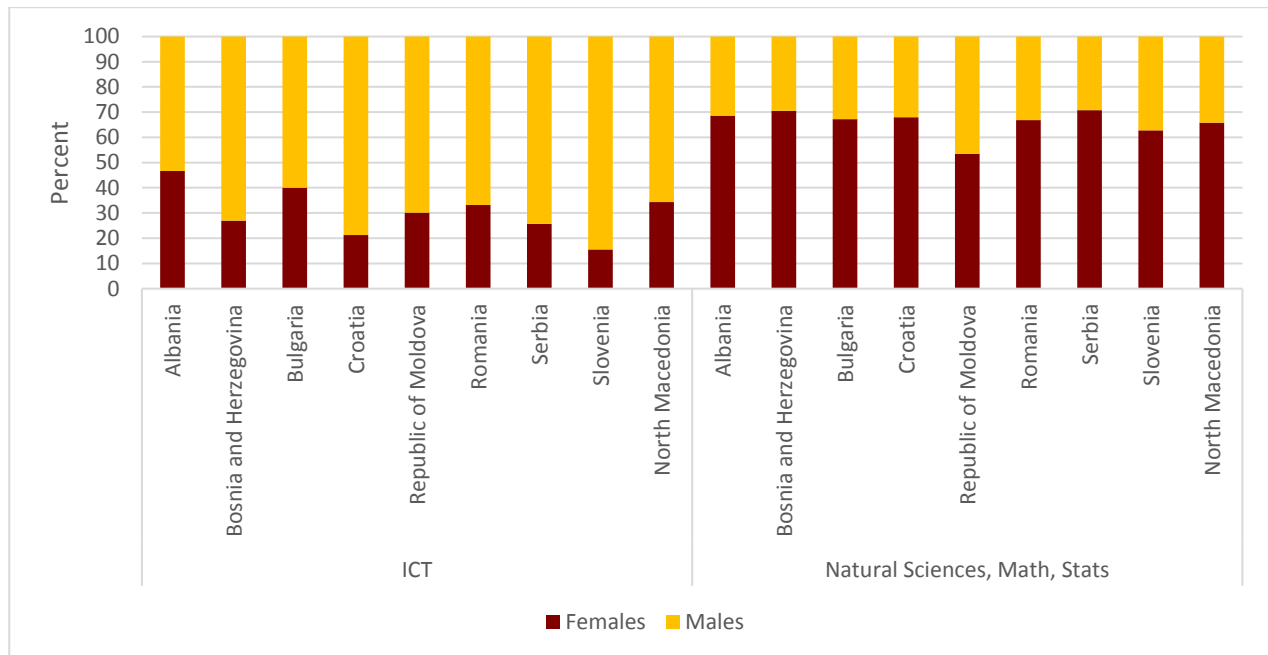


**Note:** Data for the 2016 except for following countries: Albania, Bosnia and Herzegovina, and Serbia (2017); Republic of Moldova and North Macedonia (2015). Data not available for Montenegro.

**Source:** UIS, 2019.

It is worth noting, however, that among the STEM subjects, females comprise the majority of graduates in the fields of Natural Sciences, Mathematics, and Statistics, as shown in Figure 18. Although this marks important progress in gender equity and represents a step toward equal representation of men and women in STEM, it also shows that progress for women in STEM is concentrated in a specific area rather than equally spanning all STEM subjects, as this high representation of women is not repeated among graduates from ICT programs (Figure 23) nor those from Engineering, Manufacturing, and Construction, which remain male-majority fields.

**Figure 23. Graduates by field of study and gender**



**Notes:** Data from 2016 except the following: Albania, Bosnia and Herzegovina, and Serbia: 2017; Republic of Moldova and North Macedonia: 2015. Data not available for Montenegro.

**Source:** UIS, 2019.

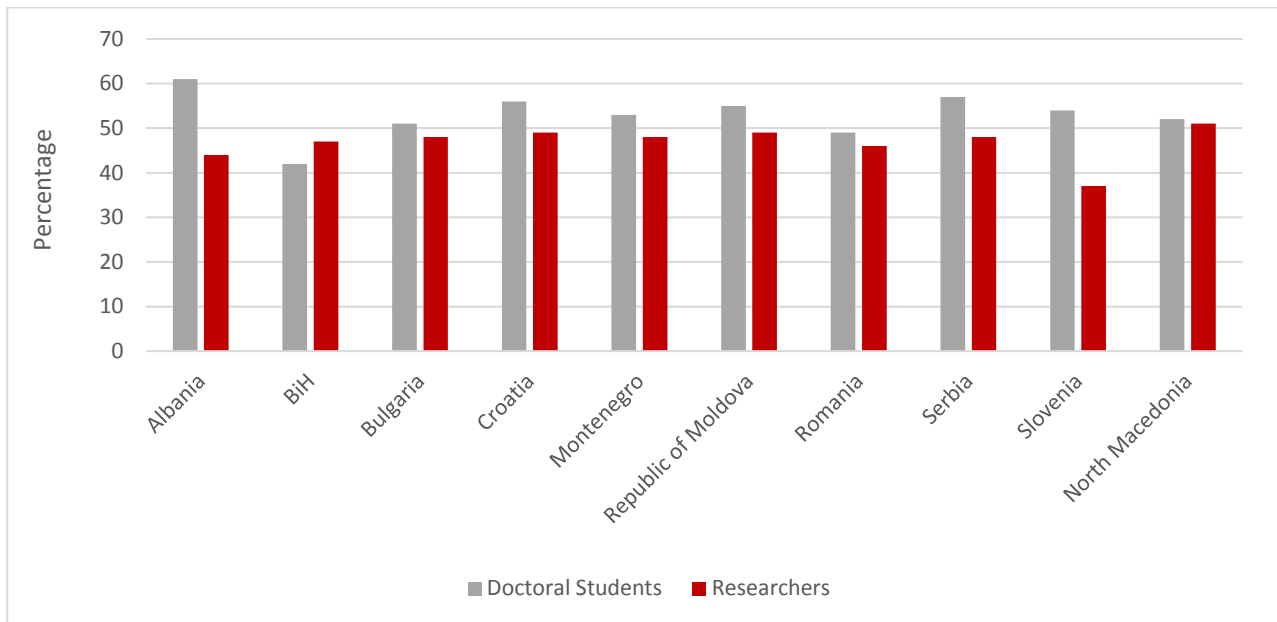
As discussed in Section 2.2., this is not dependent on aptitude and thus points to the role that gender norms and cultural expectations may play in persistent disparities. ‘Choice’ and ‘interest’ are affected by socialization, cultural norms, and stereotypes, with attitudes being strongly susceptible to influence from parents, teachers, and the media (UNESCO, 2017a).

### 3.3 Women in Research

Another point of concern is the proportion of researchers who are female, which shows that despite women’s progress in educational attainment and involvement in STEM, their involvement in researchers is, in comparison, low (Figure 24).



**Figure 24: Percentage of doctoral students compared to researchers who are female**



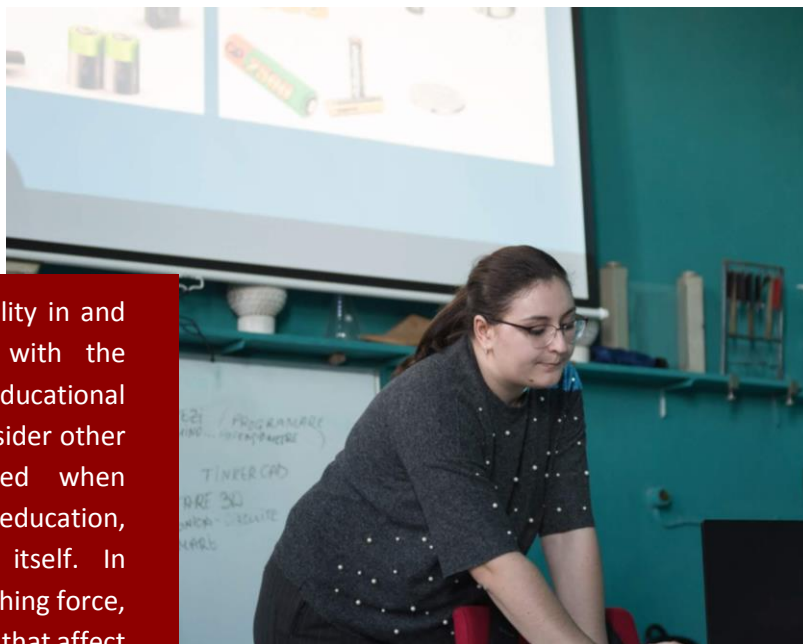
**Source:** UNESCO Institute for Statistics (UIS), 2018.

While more than half of bachelor's students in all ten countries and close to half of all doctoral students in most SEE countries are female, a significantly lower proportion of researchers are women. This could point to high attrition rates from STEM fields among women despite educational attainment, gender bias in hiring that prefers men over women when filling research positions, or multiple other societal factors, such as expectations that women take on domestic roles despite their educational qualifications.

## Chapter 4:

# Gender Equality in the Teaching Profession

Often when considering gender equality in and through education, analysis ends with the situation of girls' participation and educational quality. This report aimed to also consider other factors that are often overlooked when considering gender equality and education, including the teaching profession itself. In addition to gender equality in the teaching force, conditions, pay, policies, and practices that affect teachers must also be considered.

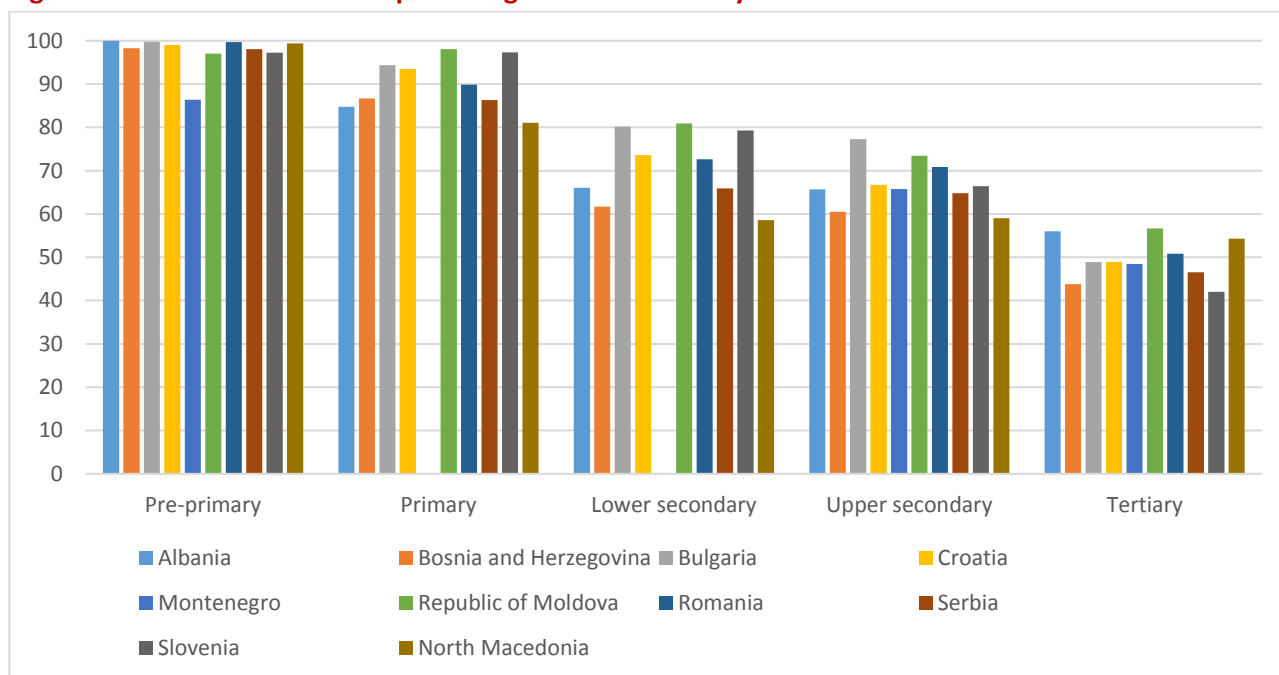


### 4.1 Female Teachers and Teacher Training

Females make up the large majority of the teaching profession (Figure 25), meaning that policies regarding training, work hours, pay, and working conditions disproportionately affect females. It is therefore important to consider at which levels of education females make up the highest percentage of teachers, as well as the conditions in which these women work.

The percentage of teachers who are female is higher than that of males at all levels below tertiary education in all countries for which data is available in SEE (Figure 20). At the preschool level, more than 97 percent of all teachers in these countries, with the exception of Montenegro, are female, and at the primary level, these percentages remain high at 85 percent or more.

**Figure 25. Female teachers as a percentage of all teachers by education level**



**Note:** Data used refers to most recent data points available as of June 2019. Pre-primary data for Montenegro is from 2011 and for North Macedonia is from 2012.

**Source:** UIS, 2019.

This may reflect again the cultural norms that view the care of younger childcare as a task for women, which is an important consideration if teaching is to be viewed and respected as a highly demanding profession within which educators are adequately paid. Although the gender balance among teachers at the secondary level is slightly higher, male teachers tend to be concentrated in STEM subjects, which also impact the way that these subjects are taught, as well as how female students perceive gender roles in society. This importantly may impact educational and career decisions made by girls. Furthermore, equitable pay for women should be ensured at all levels of education, including those in which men are under-represented as professionals.

Teacher training can contribute to gender equality in and through education in multiple ways. Pre-service training is important to ensure that female and male students are taught by adequately trained professionals, as well as to maintain the quality of preparation that professionals in this female-majority career field receive. This, along with ongoing professional development opportunities, also guarantees the professionalization of teaching, which plays a role in ensuring that teachers are adequately paid. Policies are a first step to ensuring that a country's educators are sufficiently trained. Policies that require tertiary education for all teachers, and to a greater extent those that require specialized teacher training, can help to support the professionalism of teaching as a career, may encourage teachers to continue with their professional development, and may be an important step in promoting adequate pay for teachers as highly trained and specialized professionals. Teacher training can also offer teachers the opportunity to consider their own gender bias and expectations, and how this may influence the teaching and learning practice, as well as prepare teachers with the pedagogies needed to promote gender equality in and through education

In all ten countries, a bachelor's degree is required for lower and upper secondary teachers, but just six countries (Bosnia and Herzegovina, Croatia, Montenegro, Romania, Serbia, and Slovenia) require specialized training. At the primary level, some countries (Albania, Moldova, and Romania) hire teachers who have

completed secondary education and do not require a bachelor's degree, although all 10 countries do require some form of specialized training for primary teachers.

Lack of data makes it difficult to analyze teacher training on a regional level. Indicator 4.c.1 calls for data on the percentage of trained teachers, although disaggregation by gender is not specifically requested. Data by gender was only available for the Republic of Moldova in 2017 and Serbia in 2011. The other 8 countries were missing data in this category. In the Republic of Moldova, the percentage of trained teachers is much higher among females at the pre-primary level (90.5 percent of female teachers are trained compared to 79.6 percent of male pre-primary teachers). A higher percentage of female than male teachers are trained also at the primary and lower and upper secondary levels, albeit with smaller percentage differences. In Serbia, a lower percentage of teachers overall are trained, with large gender differences present at the primary and lower secondary levels. For example, 75.9 percent of female teachers and 75.5 percent of male teachers in pre-primary are trained, compared to 59.9 percent of female teachers and 35.1 percent of male teachers at the primary level. This points to a need not only for teacher training but also for equity in training opportunities for male and female teachers at all levels.

Despite the lack of readily available data, it is evident that certain countries are in need of focusing on teacher standards to maintain both the professionalism of this predominantly female profession and to ensure that teachers receive salaries adequate for the work that they do. In North Macedonia, for example, 28 percent of teachers in primary and lower secondary schools do not meet minimum teacher standards because a lower level of education was required in the past or because they teach subjects in which they are not qualified (World Bank, 2013). Thus, continuing education and professional development opportunities must be available to teachers to increase such opportunities available to women and to maintain high standards of professionalism in teaching.

## 4.2 Pay and Teaching Conditions

Ensuring that teachers are adequately paid is critical to ensuring teacher retention and the professionalism of teaching. It is also important in gender equality, considering that the field is comprised mostly of women, and low teacher wages mean low wages for a significant number of women participating in the labor force. In Romania, the Constitution guarantees citizens the right to equal pay for equal work explicitly on the basis of gender (World Policy Analysis Center, 2018a). In Slovenia and North Macedonia, however, the legislation guarantees equal pay for equal work and protects against workplace gender discrimination. In Albania, Bosnia and Herzegovina, Montenegro, the Republic of Moldova, and Serbia, however, equal pay is guaranteed for work of equal value (World Policy Analysis Center, 2018a). It is important to remember, however, that in a field that is predominantly female such as teaching, there is the risk of devaluation of the work done by teachers and thus lower pay, especially at levels where male teachers are almost entirely missing, such as pre-primary and primary education.

In addition to pay, working conditions not only impact the daily lives of both teachers and learners but may also affect the attractiveness of the profession, dissuade some from becoming teachers, and affect how efficiently instructional time is spent and how effectively educators can teach. Overcrowded classrooms, infrastructure issues, teacher shortages, and long work hours are all such factors. In some countries, such as Albania, recent policies have reduced mandatory teaching hours so that they are now comparable to those of many other European countries<sup>7</sup>, although a reduction in teaching hours does not mean less work, as

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<sup>7</sup> Administrative Instruction 44, 2014, Albania.

teachers carry out many additional hours of other activities, including planning, grading, preparing lessons, and speaking with parents.

Teaching conditions and pay are also important to address teaching shortages. Certain subject areas, such as foreign languages in Bulgaria (World Bank, 2013), mathematics, physics, and ICT in Croatia (World Bank, 2015), and science disciplines in the Republic of Moldova (World Bank, 2014), have been identified as shortage areas, and thus schools may offer higher salaries, such as is required by law in Bulgaria. In other countries, such as Croatia, critical subject shortages are not addressed with incentives for teaching in critical shortage subjects or in hard-to-staff areas, and in others, such as North Macedonia, incentives in the form of monetary bonuses are minimal and may not be enough to attract those with the proper qualifications. Similarly, in the Republic of Moldova, existing policies to identify shortages have not been enough to fill the gaps. This is especially important in shortage areas because policies must aim to and be effective in facilitating efficient teacher deployment to hard-to-staff areas and schools. In these places, not only is it difficult to find teachers for shortage subjects such as languages and mathematics, but schools are also at risk of losing teachers due to retirement, as the majority of teachers have taught in these communities for many years. Thus, policies that include mechanisms to address shortage subjects and areas are important but lacking in many SEE countries.

### 4.3 Maternity Leave

Considering that education is a profession in which most employees are women, it is important to consider also their needs as mothers. Paid parental leave is important in ensuring female participation in the labor force and promoting a balance between work and home life. After childbearing, parental leave for both mothers and fathers ensures that mothers can return to work. Policies that support both maternity and paternity leave can have positive effects on encouraging both mothers and fathers to share the burden of childcare and to play an active role in raising their children. Currently in nine of the ten SEE countries, leave is an entitlement for both parents. Only in Albania are mothers alone guaranteed parental leave (World Policy Analysis Center, 2018b).

In nine of the ten countries, mothers are entitled to at least 52 weeks of paid leave. In North Macedonia, the allowance for paid leave is less than 52 weeks. Fathers, however, receive significantly less paid leave and policies vary more extremely. In certain countries, such as Bosnia and Herzegovina and North Macedonia, fathers are guaranteed 2 weeks or fewer of paid leave, while there is no paid leave for fathers in Albania (World Policy Analysis Center, 2018b).

Having policies in place that support both maternity and paternity leave is not enough, however, as fathers do not tend to take such leave even when it is available, unless it is mandatory. Women are thus more likely to take longer leave than men, which contributes to employers preferring to hire men over women (Human Development Report, 2016). Therefore, practices in the workplace should aim to encourage fathers to take paternity leave and should focus on equity in hiring to ensure that male employees are not chosen over female candidates based on the likelihood of parental leave. Croatia, however, sets an example in this area by encouraging fathers to partake in childcare activities by giving leave length or payment bonuses when fathers share leave.

Furthermore, the security of being guaranteed a job after return from maternity leave makes it possible for women to manage both a career and a family. In eight of the countries studied for this report, mothers are guaranteed an equivalent position after maternity leave. In two countries, Serbia and Slovenia, this is not

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guaranteed, which may make it difficult for women to return to work after childbirth and maternity leave (World Bank, 2017).

A similar and related issue is whether mothers of infants are guaranteed breastfeeding breaks at work. All SEE countries except Serbia guarantee breastfeeding breaks for mothers of infants, most until the child is 12 months old (except in Bulgaria where the limit is 8.4 months, Moldova where the limit is 36 months, and Albania and Slovenia where the guarantee has no explicit limit based on the age of the child). Serbia does not guarantee new mothers breastfeeding breaks at work.

## Chapter 5:

# Violence, Harmful Practices, and their Intersection with Education

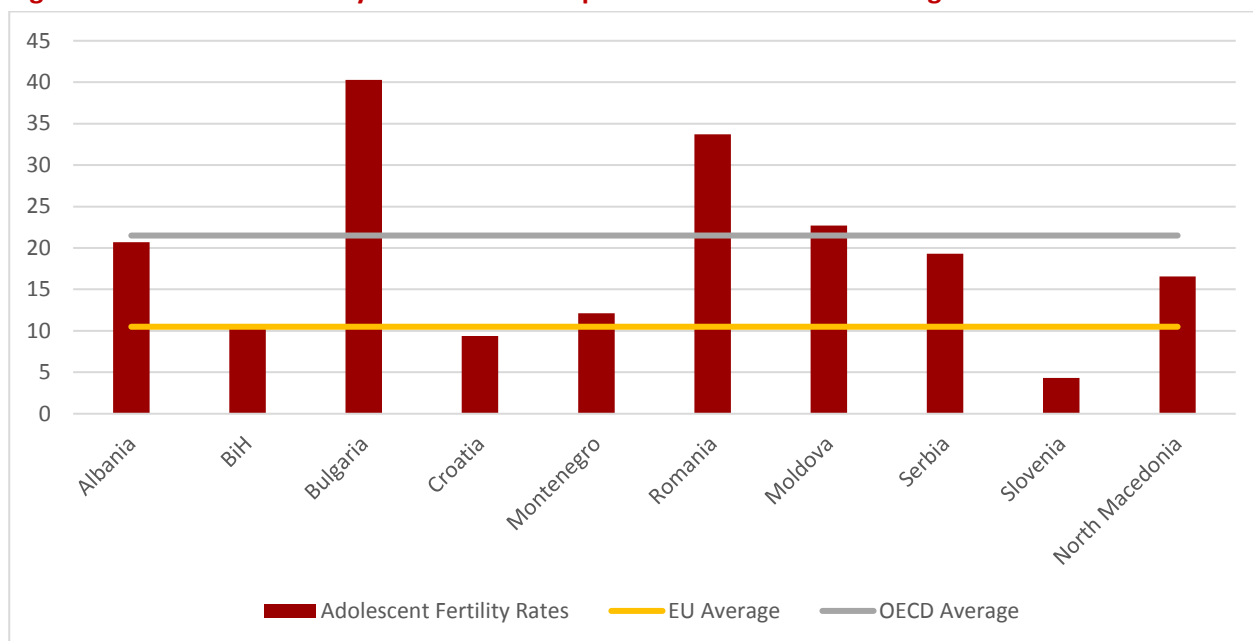


Other critical issues that lie at this intersection may be overlooked or may not be consistently or reliably measured with data but, nonetheless, play a key role in ensuring gender equality and quality education for all. Chapter 5 discusses some of these issues, including early and unintended pregnancy, early marriage, and child trafficking, as well as the importance of single-sex sanitation facilities.

### 5.1 Early and Unwanted Pregnancy

Early and unintended pregnancy has a major impact on the health, social, economic and education outcomes of adolescents, especially girls (UNESCO, 2017b). In SEE, this is particularly relevant, as adolescent fertility rates in the region remain high, including some that are above EU and OECD averages (Figure 26).

**Figure 26. Adolescent fertility levels in SEE compared to EU and OECD averages**



**Source:** OECD, 2016.

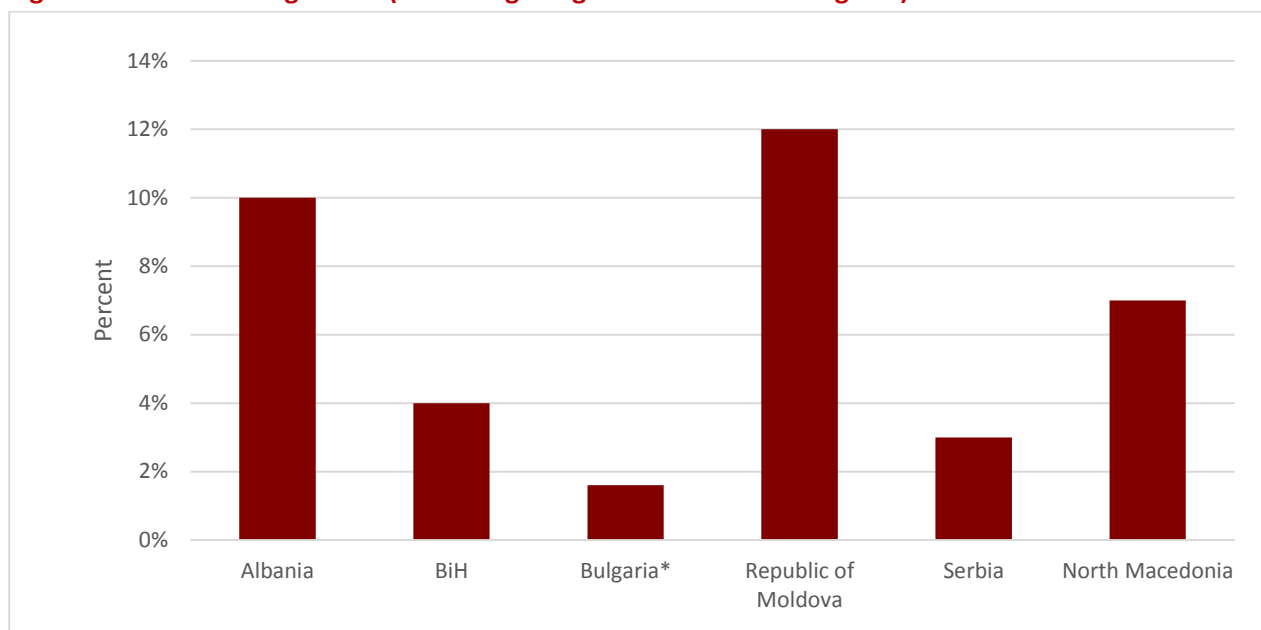
There is a strong correlation between gender inequality, early and unintended pregnancy, EUP (OECD, 2016). Education is not only important in preventing EUP but is also a right that must be protected for pregnant and parenting girls. While improvement in female education has a significant effect directly and indirectly on EUP (UNFPA & World Vision, 2012), EUP may be a contributing factor to low attendance rates and dropout, meaning that adolescent girls who experience EUP may have less of an opportunity to benefit from education, such as by developing knowledge and skills for employment. EUP may also have serious repercussions for girls' overall cognitive, psychosocial, and emotional development. Dropout is not the only risk; learning quality and engagement may also be impacted. Adolescent girls experiencing EUP are furthermore vulnerable to stigmatization, shame, increased violence, and psychosocial harms such as stress and depression. Young mothers are also more susceptible to illness, disability, and maternal death, in addition to the higher risk of health and developmental issues that their children may experience. Thus, the education sector must take an active role not only in aiming to reduce the rates of EUP, but also and especially in ensuring access to education and health services for pregnant and parenting girls.

## 5.2 Early Marriage, Child Trafficking, and Education

Adolescent pregnancy often has implications for early school leaving among adolescent girls, and this issue is often linked with early marriage. SDG indicator 5.3.1 calls for information on the proportion of women aged 20-24 who were married or in a union before the age of 15 and before 18. Child marriage, like adolescent pregnancy, threatens the rights of the girl and her children to health and education. All ten SEE countries have legislation that sets the minimal legal age for marriage at 18. However, in all countries, exceptions can be made that allow those older than 16 to enter into a marriage, often requiring permission of the president of the regional court, as well as the opinion of the person marrying and her or his parents or guardians (World Policy Analysis Center, 2018c). Thus, legislation has not prevented early marriages from occurring in many of the countries in SEE, as in Figure 27 below.



**Figure 27. Child marriage rates (Percentage of girls married before age 18) in SEE**



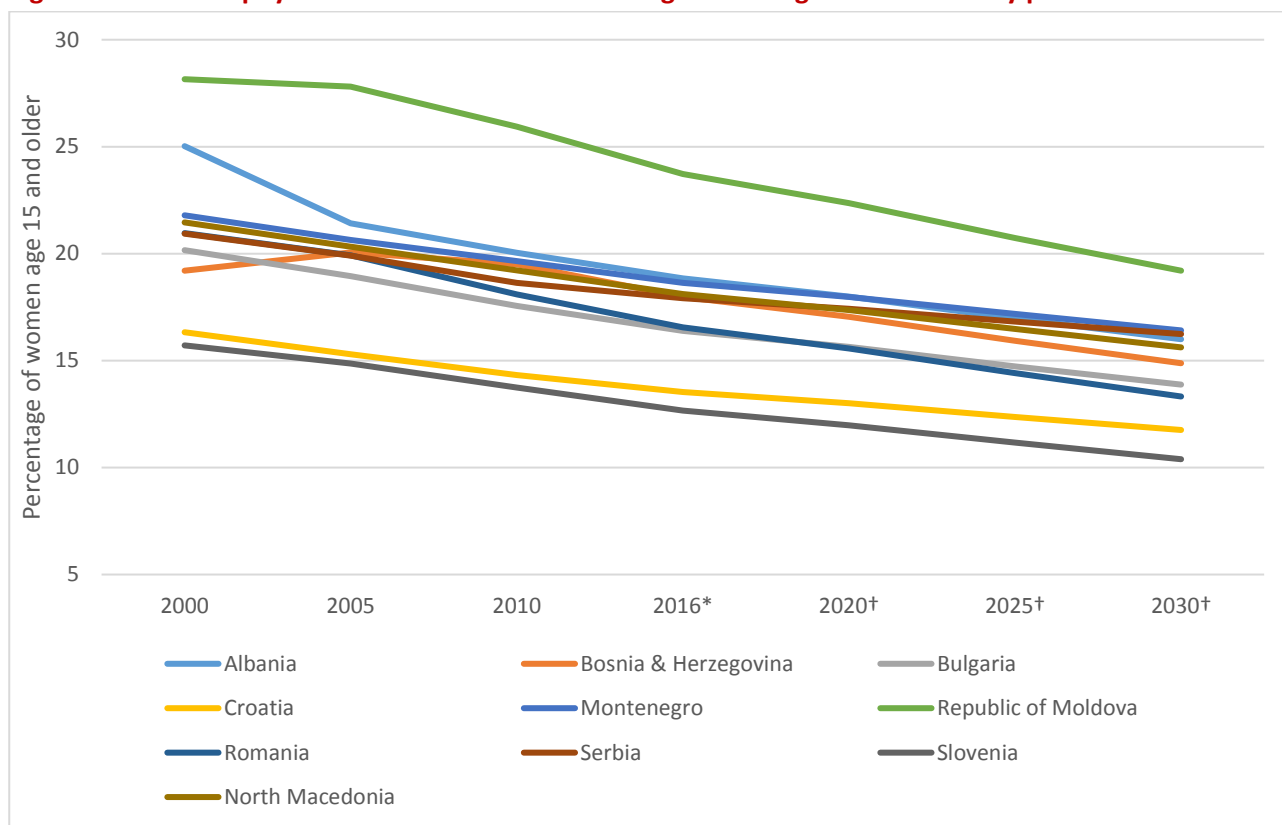
**Note:** Bulgaria’s data refer to 2014 and to the percent of total marriages; data are missing for Croatia, Montenegro, Romania, and Slovenia.

**Source:** UNICEF, 2017.

The majority of child marriages are often girls who are forced to marry against their will, but true numbers are difficult to track because many child marriages are not registered. Child marriage rates are highest among marginalized populations, such as Roma girls in SEE. For example, in parts of the Balkans, half of all Roma women aged 20-24 were married before 18, whereas the average national rate is just 10 percent (UNICEF, 2018b). Child brides are isolated from family and friends and often are victims of violence and exploitation. They also often become pregnant at a young age, endangering both their own and their babies’ health. Furthermore, children who marry before the age of 18 are more likely to drop out of school than their peers (UNICEF, 2018b). This relationship is reciprocal, as girls who drop out of school are more likely to be married, and thus education can have an ameliorative effect on child marriage rates by teaching students about the risks and consequences of early marriage (UNFPA, 2012) and ensuring that girls stay in school.

Additionally, women and girls are particularly targets of trafficking, being subjected to forced labor or sex trafficking. SDG target 5.2 aims to end all forms of violence against women and girls, including trafficking and sexual exploitation. Violence against women in the region has declined since 2000, according to 2016 data, and is projected to continue to decline. Although they are declining, however, the rates remain high, with a regional average of 17.4 percent of women over the age of 15 experiencing physical or sexual violence by an intimate partner in the last 12 months (Figure 28), and with rates even higher in some countries.

**Figure 28. Rates of physical and sexual violence among women age 15 and older by partners**



**Notes:** \*2016 data represents the latest data available in the Global Health Data Exchange (GHDx). †2020, 2025, and 2030 data represent projections made by GHDx based on previous data.

**Source:** Global Health Data Exchange, 2017.

Human trafficking is another area which, despite progress still continues to affect young girls in particular, with differences in trafficking methods visible in the forms of exploitation and recruitment. The data presented regarding human and child trafficking should be considered as only a partial picture. While official statistics show that the number of reported cases is declining overall, such as in Bosnia and Herzegovina where the annual number of victims reported between 2006 and 2011 fell from 71 to 35 and in Serbia where the number of victims decreased from 84 to 52 (Bosnia and Herzegovina Council of Ministers, 2013), the situation is worsening in some countries. Bulgaria, the Republic of Moldova, and Romania contribute significantly to this problem as a source of human smuggling and trafficking, within which age and gender affect the type of exploitation of children. In North Macedonia, the number of reported cases increased from 5 to 30 annually between 2006 and 2011, but this may signify only an increase in reporting due to practices aimed at detecting trafficking and at the same time is not a representative figure. Other factors contribute significantly to this problem, such as increasing number of domestic victims combined with a decline in the age of these victims make many cases go unreported.

Preventing and responding to these issues is of utmost importance, and the role of education cannot be overlooked. Policies that aim to increase school retention, specifically for at-risk populations, play a role in addressing these issues. Teacher training programs, which can educate teachers on warning signs and risk factors, are also important, while the curriculum can address increasing children’s own awareness and safety. These recommendations are discussed in further detail in Chapter 6.

### 5.3 Single-Sex Sanitation Facilities

SDG4 Target 4.a reads, “Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.” The corresponding indicators include the proportion of schools with single-sex basic sanitation facilities. For female students, inadequate sanitation facilities can affect their school attendance, but not all school systems have nor require separate facilities for boys and girls. The 2018 GEM Report discusses that of 71 education systems analyzed worldwide, only 61 percent required separate facilities in public schools (UNESCO, 2018a). Furthermore, even in countries where laws require sex-separate sanitation facilities, not all school systems are equipped with them, which contributes to girls’ absence during menstruation. Lack of data makes it difficult to monitor whether girls and boys have access to separate facilities. In SEE, data is accessible<sup>8</sup> for only 3 of the countries in this study. Both the Republic of Moldova and Slovenia<sup>9</sup> report the presence of single-sex sanitation facilities in 100 percent of primary, lower secondary, and upper secondary schools. The situation is not as positive in Serbia<sup>10</sup>, where only 66 percent of primary and 92 percent of upper secondary schools report access to separate sanitation facilities for boys and girls. Thus, among potential indicators of gender inequality in education proposed by the GEM Report 2018 Gender Review is an indicator that monitors the percentage of single-sex toilets. Policy makers must assume the responsibility of ensuring that the presence of such facilities in schools is not a factor impeding gender equality in education.

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<sup>8</sup> Via the SDG4 indicator database at [data.uis.unesco.org](http://data.uis.unesco.org)

<sup>9</sup> Data refers to percentage of all schools in Republic of Moldova and Slovenia;

<sup>10</sup> Data refers to public schools;

# Chapter 6:

## Conclusions and Recommendations



The preceding chapters have reviewed educational participation, quality and outcomes, and the situation of women in STEM, research, the teaching profession, as well as multiple other factors that lie at the intersection of gender equality and education. This final chapter presents the main conclusions about the situation at the nexus of gender and education in SEE and provides key recommendations based on these conclusions.

### 6.1 Conclusions

SDG4 aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Disparities persist, however, in achieving this goal, especially among marginalized populations. In South-East Europe, as throughout the world, gender inequality contributes to such disparities that impede the achievement of this goal. Furthermore, not only do schools play an important role in ensuring that boys and girls participate in education and enjoy its benefits equally, but education itself also contributes to achieving gender equality in all areas of life. Thus, gender and education must be considered an important intersection that deserves both political and practical attention, and this report has therefore provided an overview of the situation of gender equality and education in South-East Europe.

The SDGs recognize the importance of gender in all areas of sustainable development, including education. Thus, SDG4 on education includes specific indicators related to gender in pre-primary, basic, and tertiary education. This report focused on basic education and gender equality. Indicator 4.1.1 calls for information on the proportion of students at various levels achieving minimum proficiency in math and reading by gender to reach target 4.1 on ensuring the completion of free, equitable, and quality education for boys and girls. Indicator 4.6.1 calls for data on the proportion of a given age group achieving at least a fixed level of

proficiency in functional literacy and numeracy skills by gender. Indicator 4.a.1 aims to monitor the percentage of schools with access to, among other conditions, single-sex basic sanitation facilities. Furthermore, target 4.c.1 tracks the proportion of teachers at various levels with minimum teacher training by gender. Although not all indicators and targets specifically call for disaggregation by gender, some that do not can nonetheless clearly be linked with gender equality. For example, indicators 4.1.4 and 4.1.5 on completion rate and out-of-school rate can provide useful insight into gender equality. Thus, target 4.5 specifically focuses on eliminating gender disparities, and its first indicator (4.5.1) calls for parity indices, including gender, for all relevant education indicators. This report thus focused not only on those indicators that explicitly called for data by gender but also on other information related to education and gender equality. Additionally, SDG5 on gender equality includes targets and indicators specifically related to the role that education can play in reducing gender inequalities, including targets 5.2 and 5.b and indicators 5.3.1 and 5.6.2.

Educational participation was first explored to provide insight into the availability and access of educational services. At the primary level, net enrollment is above 85 percent where data is available, and gender parity is high. At the lower and upper secondary levels, however, net enrollment is lower, although parity remains high and the net enrollment rate among girls is often slightly higher than that among boys. Regionally, little progress in increasing enrollment has been made since 2000. Furthermore, of the students who are enrolled, boys' net attendance rates are slightly higher than girls'. These differences are much more pronounced among the poorest wealth quintile and rural populations and are even more severe when location and wealth are considered simultaneously. Similar patterns are found also in lower and upper secondary school.

Countries have almost completely reached gender parity in transition from primary to lower secondary school, but completion rate, despite being higher for women in post-secondary education, is lower among girls in primary and lower secondary education on average in SEE. Similarly, 94 percent of women compared to 98 percent of men completed at least primary education, and for upper secondary education, the difference increases to 74 percent of males and 64 percent of females. An even larger gap is found in Bosnia and Herzegovina, Croatia, Montenegro, Romania, and Serbia. Although gender differences in out-of-school children depend on the country, the largest disparities are in favor of male students, and the rates have increased over time in some countries such as the Republic of Moldova and Romania. Furthermore, gender differences in participation, attainment, and dropout are exacerbated by the intersection of gender with other disadvantaged statuses, such as having a disability, belonging to the poorest wealth quintile, living in rural areas, or belonging to a minority population such as the Roma.

Education is not only a human right but also serves the purposes of ensuring that learning is meaningful and of high quality. A lack of up-to-date data makes it difficult to determine if primary students are reaching basic proficiency. At the lower secondary level, gender gaps in reading proficiency are at the expense of boys, and in math, the gender advantage depends on the country. In Albania, Bulgaria, the Republic of Moldova, Slovenia, and North Macedonia, they are slightly in favor of girls. Gender gaps are in favor of boys in Croatia, Montenegro, Romania, and Serbia. Despite these differences, the GEM Report 2018 Gender Review emphasizes that skills may develop at different rates and that students have and pursue opportunities beyond these levels to develop these skills and bridge these gaps.

International large-scale assessments also give insight into students' skills and their abilities to apply them. Gender differences in TIMSS vary by country, as do gender differences in PISA math scores. In reading and science, girls tend to outperform boys. Over time, some countries such as Montenegro have made progress

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in closing gender gaps, while disparities persist in other countries such as Croatia. In countries where these gender gaps remain, more focus may be needed on attaining gender equity through curricular or pedagogical considerations. Basic education, however, is not the only learning that may be needed, as lifelong learning opportunities can help to close existing gaps in the literacy skills, which are in favor of men among the population over the age of 15. More and disaggregated data is needed to determine if gender gaps exist in ICT proficiency, although overall, the percentages of youth and adults with these skills are very low.

The countries of SEE have a high presence of females in STEM, with the percentage of graduates from STEM fields who are women ranging from 30 percent in Slovenia to 49 percent in Albania. Within STEM, however, women are almost entirely concentrated in Natural Sciences, Mathematics, and Statistics, which, considering equal aptitude among boys and girls, points to persistent cultural norms, gender stereotypes, and societal expectations that may affect girls' academic and career decisions. These issues are further highlighted by the fact that a significantly lower percentage of researchers than of higher education students are female. The school must therefore play an active role in encouraging girls to enter STEM fields, fostering their interest and skills in these areas, and combatting gender stereotypes in pedagogy, curricula, the classroom environment, and materials.

Not only are teachers important actors in many of the changes that schools can make to achieve gender equality, but it is also critical to consider the training, pay, and working conditions of teachers themselves, as the profession is comprised predominantly of women. All levels of education besides tertiary have more than 50 percent female teachers, with the percentages being the highest in pre-primary and primary. It is important, therefore, to consider why more males than females are hired in tertiary education and to ensure that at all levels, teachers are adequately paid and trained. While the percentage of trained teachers tends to be higher among female teachers at the pre-primary and primary levels, more male than female teachers are trained in lower and upper secondary. Equitable training opportunities must be provided to ensure the professionalism of teaching. Policies and practices must also further be explored regarding teacher pay and teaching conditions to avoid the risk of devaluation of this important work performed mostly by women. This can also contribute to filling teacher shortages, which exist in some countries such as Bulgaria, Croatia, and the Republic of Moldova, in subjects such as ICT, physics, and math. Finally, teachers' right to maternity leave is critical, but policies are not enough. Practices in the workplace should be supportive of pregnant women and new mothers, ensuring job security and breastfeeding breaks upon their return.

This report also aimed to explore other factors at the intersection of education and gender for which no specific SDG4 indicators exist. Despite the absence of indicators, education can play an ameliorative role in issues such as adolescent fertility, early marriage, and child trafficking. In certain countries, adolescent fertility rates are significantly above the OECD average, reaching 40 percent and 34 percent in Bulgaria and Romania respectively. Adolescent pregnancy reduces a girl's likelihood to stay in school and thus impedes her psychosocial, cognitive, and emotional development, in addition to putting her at greater risk of diseases, disability, and violence. Thus, the education sector can ensure gender-responsive policies to promote girls' participation and retention in school, inclusive learning environments, comprehensive sexuality education, and other services to prevent dropout and support reentry if girls do become pregnant. Early marriage similarly threatens girls' rights to health and education, but in SEE, child marriage still occurs at rates as high as 12 and 10 percent in the Republic of Moldova and Albania, respectively. There are likely many more that go unregistered, however, and rates are higher among marginalized populations such as the Roma. Education can aim to prevent the isolation that child brides may experience, as well as the other effects such as violence

and exploitation, by ensuring that girls stay in school and teaching students about the risks and consequences of early marriage.

While the data that is available for child trafficking rates does not represent the full picture, official statistics show a decline in the number of reported cases in Bosnia and Herzegovina and Serbia. Other countries, however, namely Bulgaria, the Republic of Moldova, and Romania, continue to be significant contributors to the problem through human trafficking and smuggling, and in North Macedonia, the number of reported cases increased between 2006 and 2011. Educating teachers about the warning signs and risk factors, increasing students' awareness and safety, including online safety, ensuring that all children—especially those at risk such as street children—are included in school, and working to prevent dropout are all ways that schools can play an active role in combatting these problems.

This report has shown both progress that has been made in achieving gender equality—such as gender parity in net enrollment rates and transition rates, and a high representation of women in STEM—and areas for concern—such as attendance, dropout, attainment, adult literacy rates, ICT skills, and teacher training, as well as early marriage, adolescent pregnancy, and child trafficking. The education systems of SEE may therefore wish to increase attention given not only to overall enrollment but also to inclusion of all students, especially those historically marginalized, in formal education. By increasing inclusion and ensuring environments that are gender, ethnicity, and disability sensitive, schools can also aim to reduce dropout rates among the most vulnerable. Examples include providing single-sex sanitation facilities for girls, encouraging girls' interests and attainment in STEM fields, and implementing specific interventions to raise awareness of the risks and consequences of issues such as adolescent pregnancy and child trafficking which threaten their rights to education, health, and development. Schools can also increase ICT skills to better prepare students for 21st century learning and employment. The education sector may also consider prioritizing the professionalism of teaching through gender-sensitive policies, adequate pay, professional development and training, and more equitable hiring of women higher levels of education. Although progress has been made, there is still a long way to go in achieving gender equality, especially where it intersects with education in the countries of South-East Europe.

## 6.2 Recommendations

Gender-responsive policies and practices are important both in combating gender inequalities in education and in enabling the education system to play an active role in increasing gender equality in society. Gender-responsive interventions specifically focus on addressing barriers to education faced by girls or boys (or men or women) because of their gender. Interventions that are targeted to address the challenges, risks, and disadvantages faced by girls, boys, women and men in and through education can help countries to address these issues that lie at the intersection of SDGs 4 (quality education) and 5 (gender equality). Gender-responsive sector plans can be prepared to connect specific challenges faced by countries with these targeted policies and interventions to address these priorities. For example, some of these recommended approaches may include legislation to address child marriage, policies for decreasing discriminatory procedures in registration and school assignment of minority populations (e.g., Roma children and street children), policies for increasing retention rates among these populations as well as among pregnant girls and adolescent mothers, and policies to ensure that teachers are trained in gender-responsive pedagogy. Furthermore, laws and practices must guarantee equality in teacher preparation, hiring, training, and pay and can be further supported by policies that guarantee parental leave (i.e., both maternity and paternity leave), job security, and mothers' right to breastfeeding breaks. Safe, supportive, inclusive learning environments should also be designed to discourage dropout, particularly of at-risk populations such as Roma, children from poor families,



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and pregnant or parenting girls. Comprehensive sexuality education and single-sex sanitation facilities are another general recommendation for addressing gender equality in and through education.

More specific recommendations for the priorities discussed in this report are given in the sections below. However, such policies and practices designed to target specific challenges depend on high-quality, reliable, consistent, and updated data that is disaggregated by gender and by other social characteristics (e.g., disability, socioeconomic status, rural/urban, and minority) to identify priorities at the national and local levels. Thus, countries may wish to consider which data remains to be collected and/or updated and where improvements may be necessary. For example, improvements may be needed in personnel and capacity strengthening, in ensuring effective information systems and accessible databases, and in making sure that tools and methods for data collection, disaggregation, and analysis are efficient and updated. Furthermore, more robust measurement of gender inequalities in education could be prioritized.

### **6.2.1. Improving Gender Equality in Educational Participation, Quality, and Outcomes**

With the aim of increasing enrollment, attendance, and completion rates for girls among at-risk populations, gender-responsive interventions may be useful in addressing specific contextual factors that contribute to persistent challenges. These might include quotas for girls' or boys' enrollment and attainment depending on the challenge facing that particular level of education. Another may be aimed at eliminating practices in registration procedures that discriminate against certain populations, such as the Roma. Countries may wish to look closely at school assignment procedures to determine if they disadvantage children from at-risk populations, such as minorities or children with disabilities. Other gender-responsive interventions might include after school clubs for girls that provide support and opportunities for extracurricular learning, and bursary schemes or cash transfers linked to girls' attendance and delay of marriage may also be considered. Such policies and practices also require an overall approach to education that provides safe, supportive, and inclusive learning environments, such as by challenging cultural norms which prescribe certain roles to girls and women and those which apply a medical or deficit model to children with disabilities.

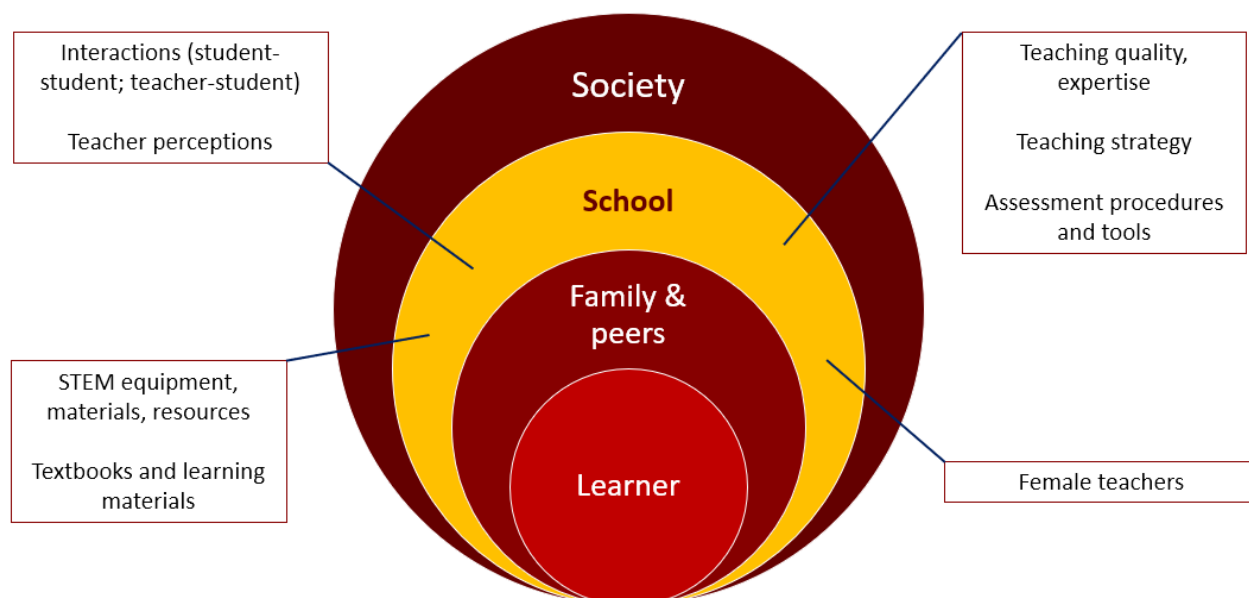
### **6.2.2 Encouraging Girls and Women to Participate in STEM**

The under-representation of women in STEM fields impedes sustainable and equitable development, and gender disparities in STEM in academia and employment perpetuate status and income inequalities (UNESCO, 2017a). As discussed in chapter 3, STEM plays a key role in the achievement of the SDGs providing knowledge, skills, attitudes, and behaviors for sustainable development. Because girls begin to lose interest at an early age and pursue STEM opportunities at a lower rate than boys, countries may wish to employ approaches that consider how socialization, cultural norms, stereotypes and the influence of parents, teachers, and the media relate to these decisions.

UNESCO identifies multiple individual, family, peer, school, and societal factors that influence girls' and women's involvement and achievement in STEM, including self-perception, interest, engagement, expectations, family characteristics, assessments, learning materials, media, and legislation (Figure 29).



**Figure 29. Ecological model of factors influencing girls' and women's involvement and achievement in STEM**



*Source: Adapted from UNESCO, 2017a.*

Schools play an integral role in the interaction of these factors and can act to ensure that their influence on girls' involvement in STEM is positive. The education system is therefore critical in encouraging girls' interest in STEM and providing access to materials, information, and opportunities that promote girls' involvement in these fields. Schools can provide targeted interventions to focus on improving correlated skills, such as language and spatial abilities, especially early in life. Even during early childhood, children can be exposed to science and mathematics, which can later influence life choices in these fields. Schools should encourage female students to study STEM subjects, especially those related to science, technology, and engineering. Schools may wish to not only encourage girls' enrollment in STEM courses but also to be sure that these courses acknowledge and encourage female achievement, as UNESCO (2017a) reports that in OECD countries, according to PISA 2015 results, higher levels of achievement in science are associated with higher expectations of working in science fields. Countries may therefore wish to ensure that their curricula are devoid of gender stereotypes and purposefully represent women in STEM fields.

Furthermore, teachers, including the gender of STEM subject teachers, their expectations for female students, and their equal treatment of boys and girls in STEM subjects, have an important impact of girls' performance and attitudes. Curricula and learning materials which connect science to real life and girls' interests and represent females in STEM fields can help to positively shape girls' early experiences with STEM topics. Similarly, providing female mentors for internships and practical experiences can help to encourage female participation in STEM. Schools can also focus on recruiting both female and male teachers in STEM subjects, supporting ongoing professional development for teacher quality, educating teachers about gender issues in the classroom and provide support in their awareness of their own gender bias, stereotypes, attitudes, and behaviors that impact girls in STEM classrooms. Teachers are therefore critical in helping female students to develop a science identity in which an academic or career future in STEM fields is imaginable and plausible. Diverse experiences, classroom examples, projects, and interactions can incorporate a broader range of interests, while encounters with females in STEM through presentations, meetings, apprenticeships, and media can be helpful in engaging and encouraging girls to pursue their interests within these fields. At a larger level, school leaders and local entities can advocate for and support expanded opportunities for females to receive scholarships to pursue STEM studies (UNESCO, 2017a).

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Recommendations related to school-level factors and specific actions schools can take to support gender equality in STEM are outlined in further detail in Annex 7.

### 6.2.3 Conditions, Pay, Policies, and Practice for Teachers

Because women make up the large majority of the teaching profession throughout SEE, policies regarding training, pay, and work hours, and working conditions disproportionately affect women. For example, low pay in teaching means low pay for a large percentage of women in the labor force. These factors may dissuade people from becoming teachers and can contribute to the persistent teacher shortages in some countries. For these reasons, policies and practices need to be designed to support women in their careers as educators. Teaching must be viewed and respected as a highly demanding profession within which educators are adequately trained and paid. Along these lines, countries may wish to consider whether pre-service and in-service training opportunities are equally available for both male and female teachers in all education levels and subjects, and if both male and female teachers are held to the same standards regarding training when being hired. Similarly, countries may wish to ensure that gender equality is reflected in policies and practices regarding teacher pay and that the pay offered to teachers, who are majority female, is adequate for the job that they do.

Another example of an area in which countries may wish to evaluate how policies and practices impact gender equality is regarding maternity and paternity leave. While policies exist in 9 of the 10 countries reviewed in this report, the existence of policies is often not enough to ensure that practices support teachers in this way. Workplace policies can aim to not only offer adequate maternity leave but also to support practices that encourage fathers to take paternity leave, such as in Croatia, where leave length or payment bonuses can be given when fathers share leave. Furthermore, equity should be central to hiring practices to ensure that male candidates are not preferred to female candidates because of issues related to pregnancy.

Hiring practices may also impact how subjects are taught and whether or not students see themselves represented in the subjects. In other words, as discussed previously, girls may benefit in terms of perceived self-efficacy in STEM subjects if they are taught by female teachers. Thus, as Chapter 3 has shown that the majority of graduates from STEM fields are women, especially in Natural Sciences, Mathematics, and Statistics, countries may wish to review hiring practices to ensure that gender differences in the teaching force by are not related to perceptions about competence based on gender.

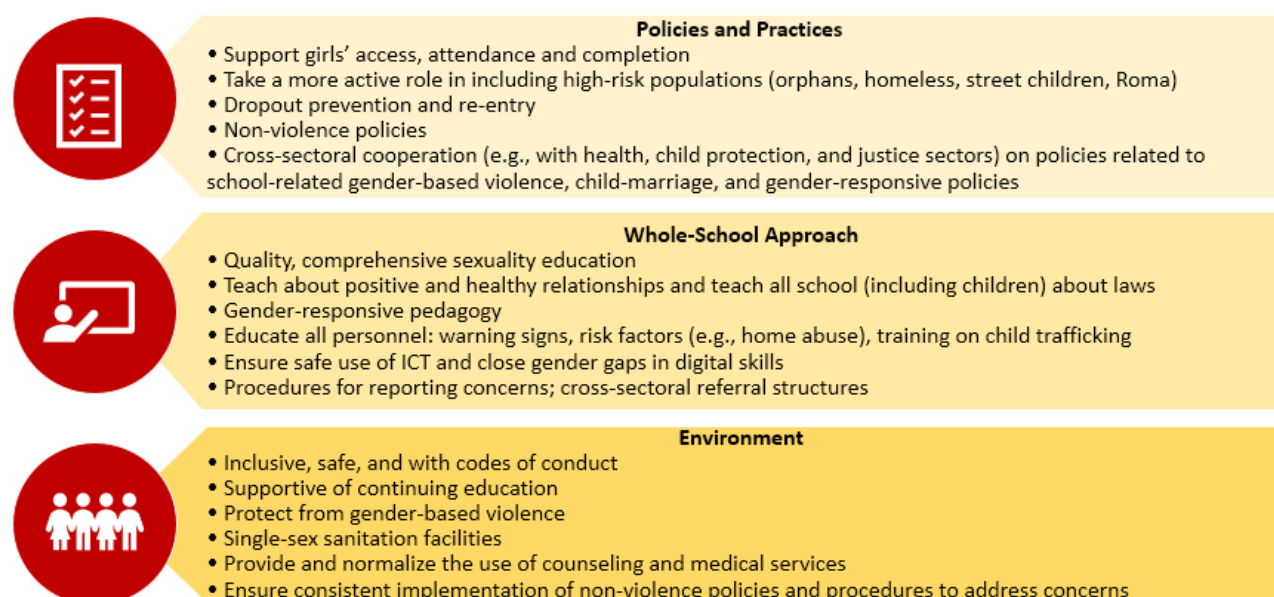
### 6.2.4 Education in Reducing EUP, Trafficking, and Violence

The education sector must take an active role in ensuring access to education and health services that enable girls to fulfill their right to education. It also must aim to reduce early and unintended pregnancy. Education is effective at reaching these goals when girls access, attend, and remain in school, are protected from gender-based violence in school, have learning environments in which they are encouraged and supported to continue their education, and receive quality, comprehensive sexuality education (UNESCO, 2018b). SDG target 4.7 calls for ensuring that all learners acquire knowledge and skills needed to promote sustainable development, which includes human rights, gender equality, and non-violence. Indicator 5.6.2 calls for data on the number of countries who provide access to not only sexual and reproductive health care and information but also education. Thus, SEE countries may wish to focus specifically on providing this education to all students with the aim of reducing adolescent pregnancy and behavior that may put girls at risk for violence and health issues. Furthermore, when girls do become pregnant, the education sector must ensure that their right to an education is fulfilled by creating safe, supporting, and inclusive learning environments

and promoting access to counseling and medical services. UNESCO also recommends implementing dropout prevention and re-entry policies that encourage and support girls to continue their education during and after their pregnancy (UNESCO, 2017b).

Countries may also wish to consider how the education sector can help to reduce the risk of child trafficking and gender-based violence (Figure 30). Considering that certain populations of children are particularly vulnerable to trafficking, such as orphans, homeless, and street children, combatting trafficking demands a comprehensive strategy that also addresses these issues. Because these children are often excluded from education and are forced to beg on the streets, they become particular targets for perpetrators of trafficking. Centers that have been opened in cooperation between non-governmental organizations and international donors<sup>11</sup> provide support to these children and enable cooperation with local institutions (Bosnia and Herzegovina Council of Ministers, 2013) but the education systems in SEE could take a more active role in ensuring the inclusion of these children in general education. Thus, gender-responsive policies that specifically aim to keep these at-risk populations in school may be of high importance. Efforts should similarly focus on ensuring the participation of Roma children in formal education, as they are significantly at risk as well. Furthermore, the learning environment can be made to ensure inclusivity, support for parenting girls, and inter-sectoral cooperation to offer counseling and medical services.

**Figure 30. Recommendations for the education sector to help combat child trafficking and gender-based violence**



**Source:** Author's elaboration.

Beyond ensuring children's participation and retention in education, education systems can also provide quality, comprehensive sexuality education that teaches boys and girls the skills they need for healthy, respectful relationships. Furthermore, a whole school approach could include teaching online safety as an element in the curriculum, monitoring students' online activity, school policies that promote non-violence, and educating all teachers and personnel about warning signs of and risk factors for violence, such as signs home abuse or bullying. This approach could also include procedures for students, teachers, or personnel to

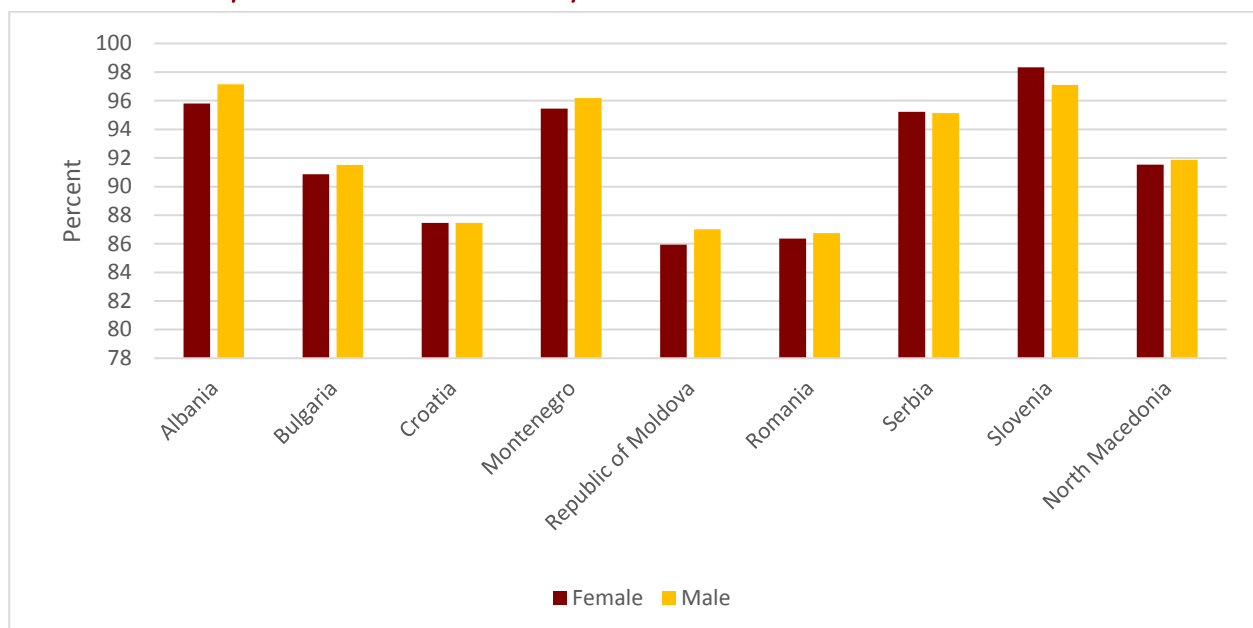
<sup>11</sup> Such as in Bosnia and Herzegovina where the organization Zemlja djece/Land of Children has been recognized by Save the Children as efficient for its Tuzla Day Care Center which provides support to street children. Available at [http://msb.gov.ba/PDF/brosura%20eng%20final%20mail%20\(1\).pdf](http://msb.gov.ba/PDF/brosura%20eng%20final%20mail%20(1).pdf)

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report concerns, well-known and fully and consistently implemented mechanisms for addressing these reports, and counseling available for students, faculty, and staff. Countries may also wish to consider feasible ways for delivering this information on the forms and consequences of violence and trafficking even and especially to those who do not attend school and to parents.

# Annexes

## Annex 1: Primary Net Enrollment Rates by Gender

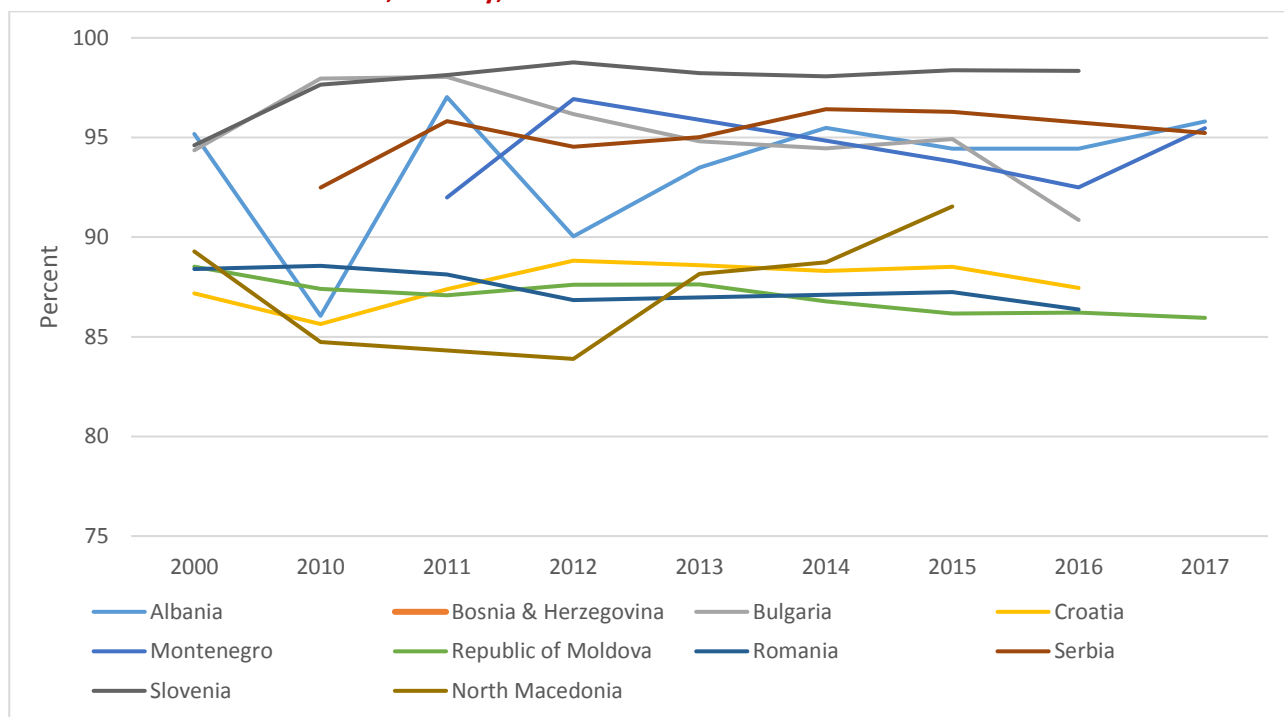


**Notes:** Data from the following years: Albania, Montenegro, Republic of Moldova, and Serbia: 2017; Bulgaria, Croatia, Romania, and Slovenia: 2016; North Macedonia: 2015. Data not available for Bosnia and Herzegovina.

**Source:** UIS, 2019.

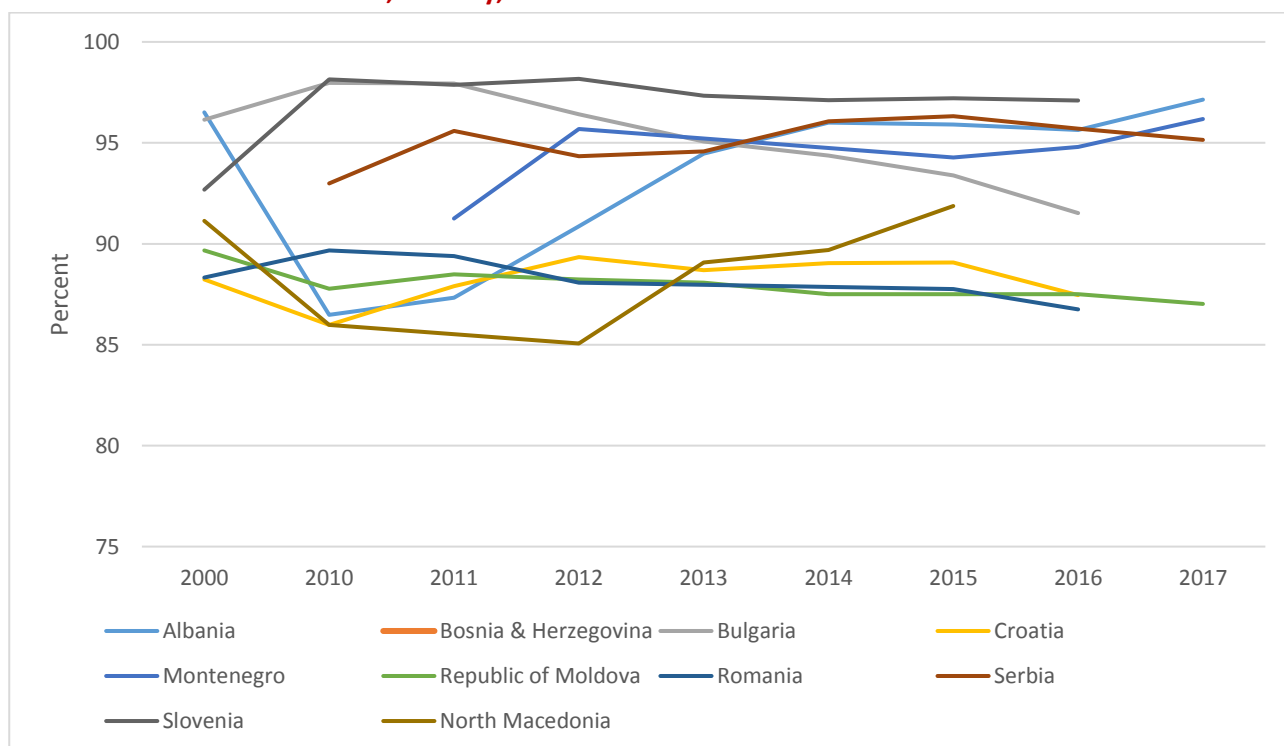
## Annex 2: Net Enrollment Rate Trends

### Net Enrollment Rate over Time, Primary, Female



Source: UIS, 2019.

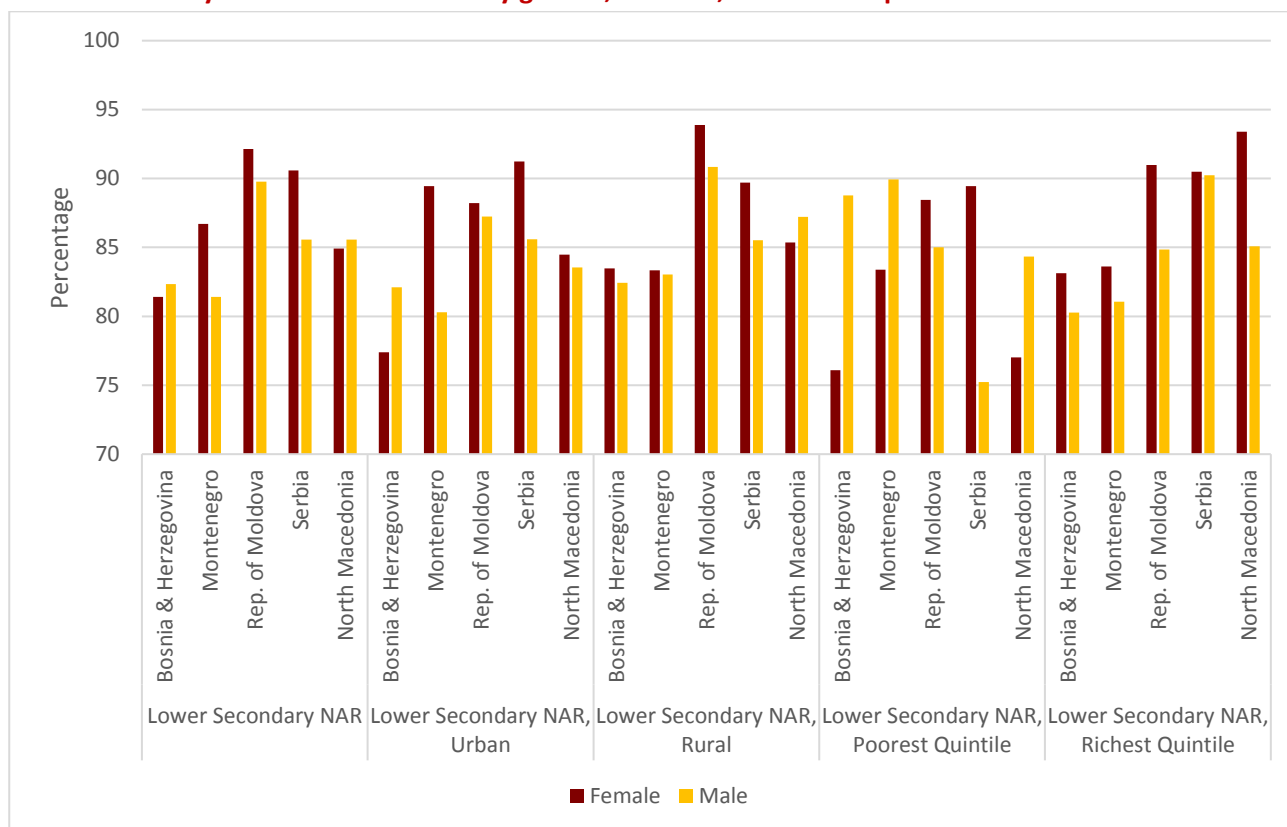
### Net Enrollment Rate over Time, Primary, Male



Source: UIS, 2019.

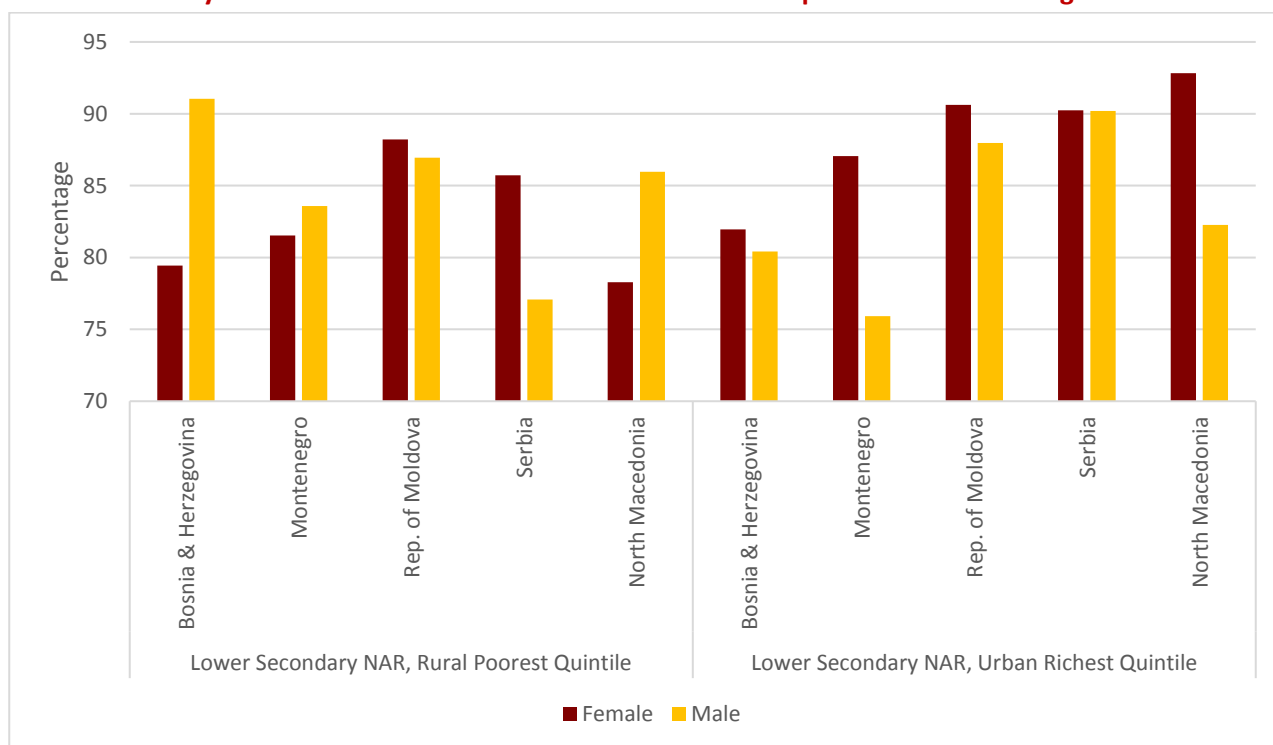
## Annex 3: Disparities in Net Attendance Rates

### Lower secondary net attendance rates by gender, location, and wealth quintile



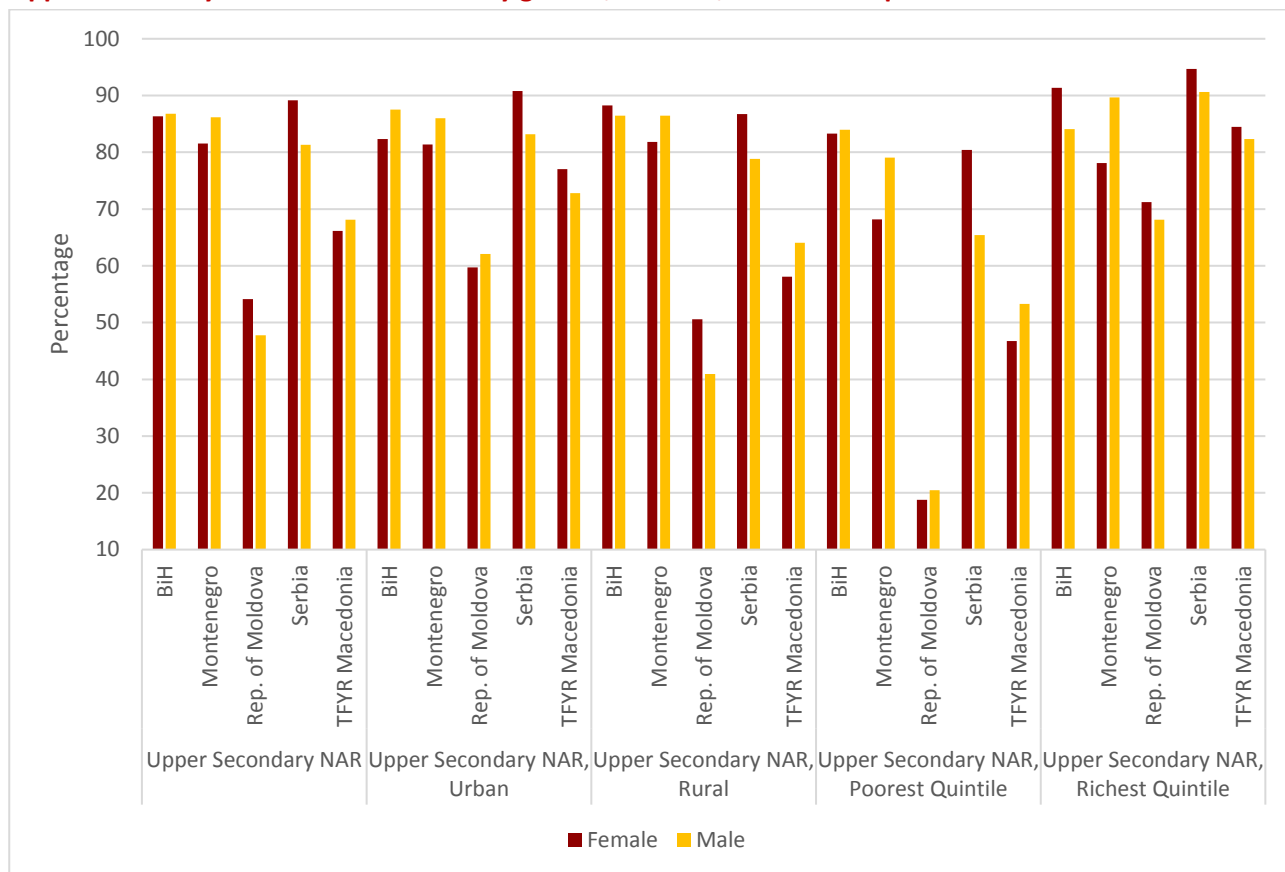
Source: UIS, 2018.

### Lower secondary net attendance rates with location and wealth quintile considered together



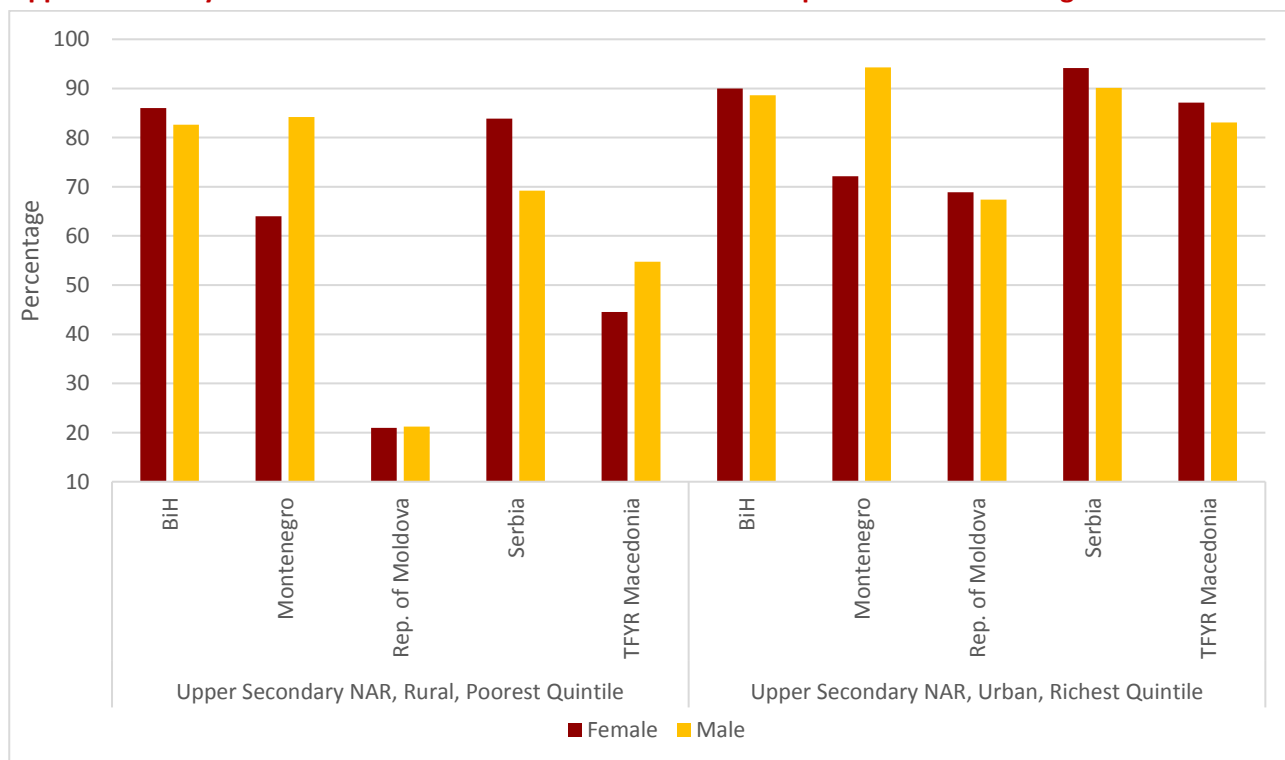
Source: UIS, 2018.

### Upper secondary net attendance rates by gender, location, and wealth quintile



Source: UIS, 2018.

### Upper secondary net attendance rates with location and wealth quintile considered together

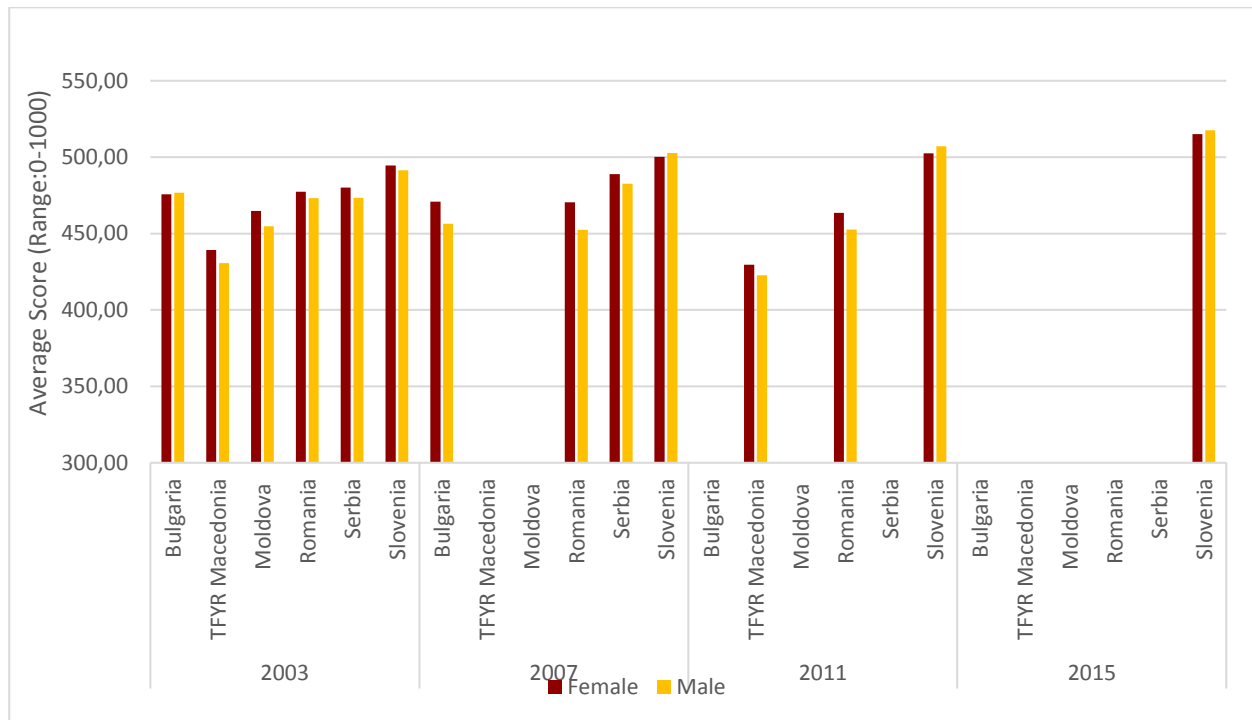


Source: UIS, 2018.



## Annex 4: Performance on International Large-Scale Assessments

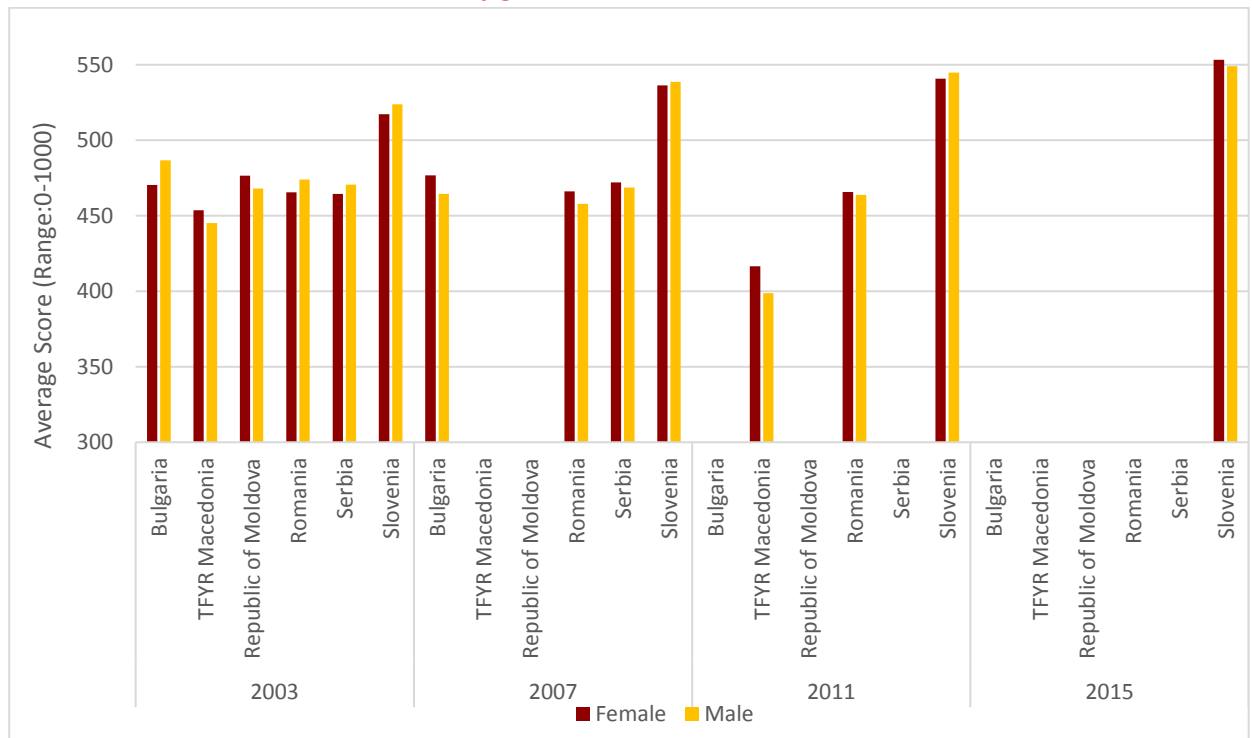
### TIMSS Grade 8 math overall scores by gender



**Note:** Missing data shows years when countries did not participate for that grade level of testing.

**Source:** National Center for Education Statistics, 2018.

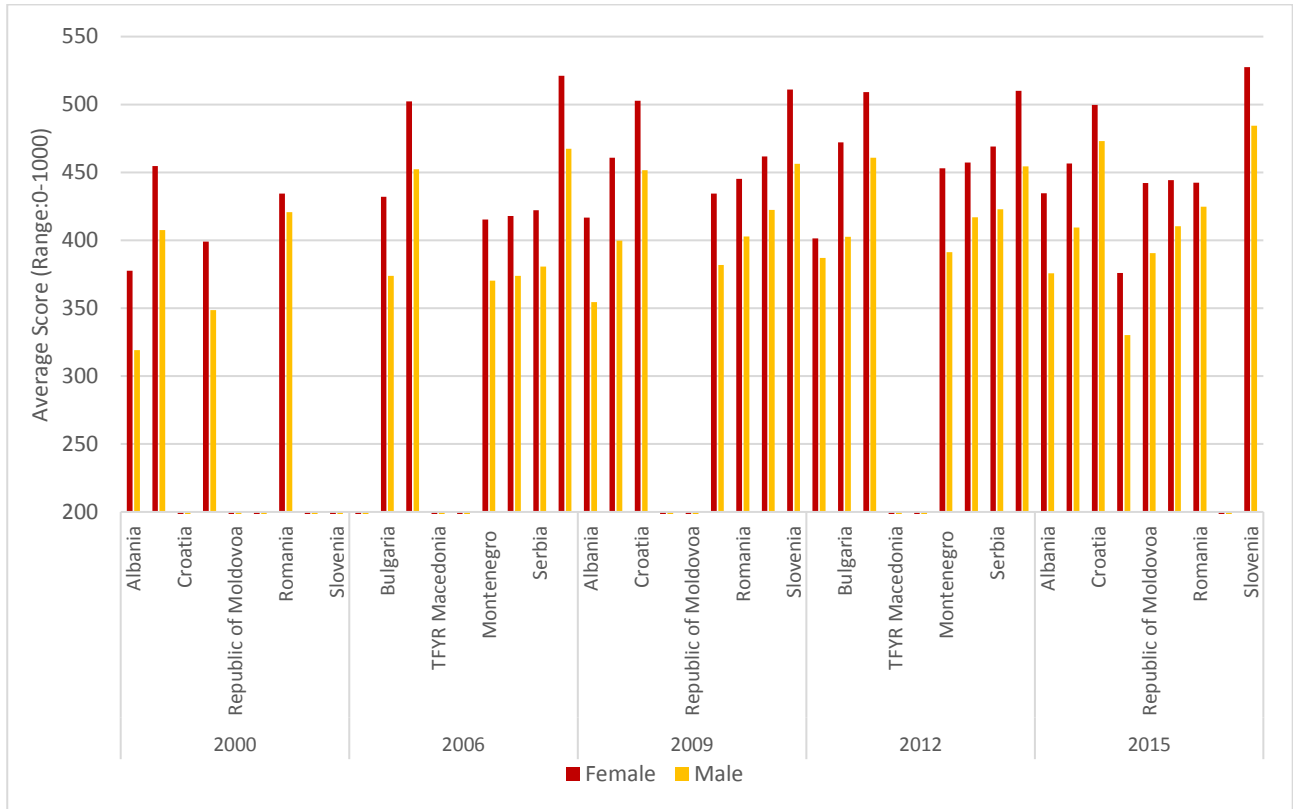
### TIMSS Grade 8 science overall scores by gender



**Note:** Missing data shows years when countries did not participate for that grade level of testing.

**Source:** National Center for Education Statistics, 2018.

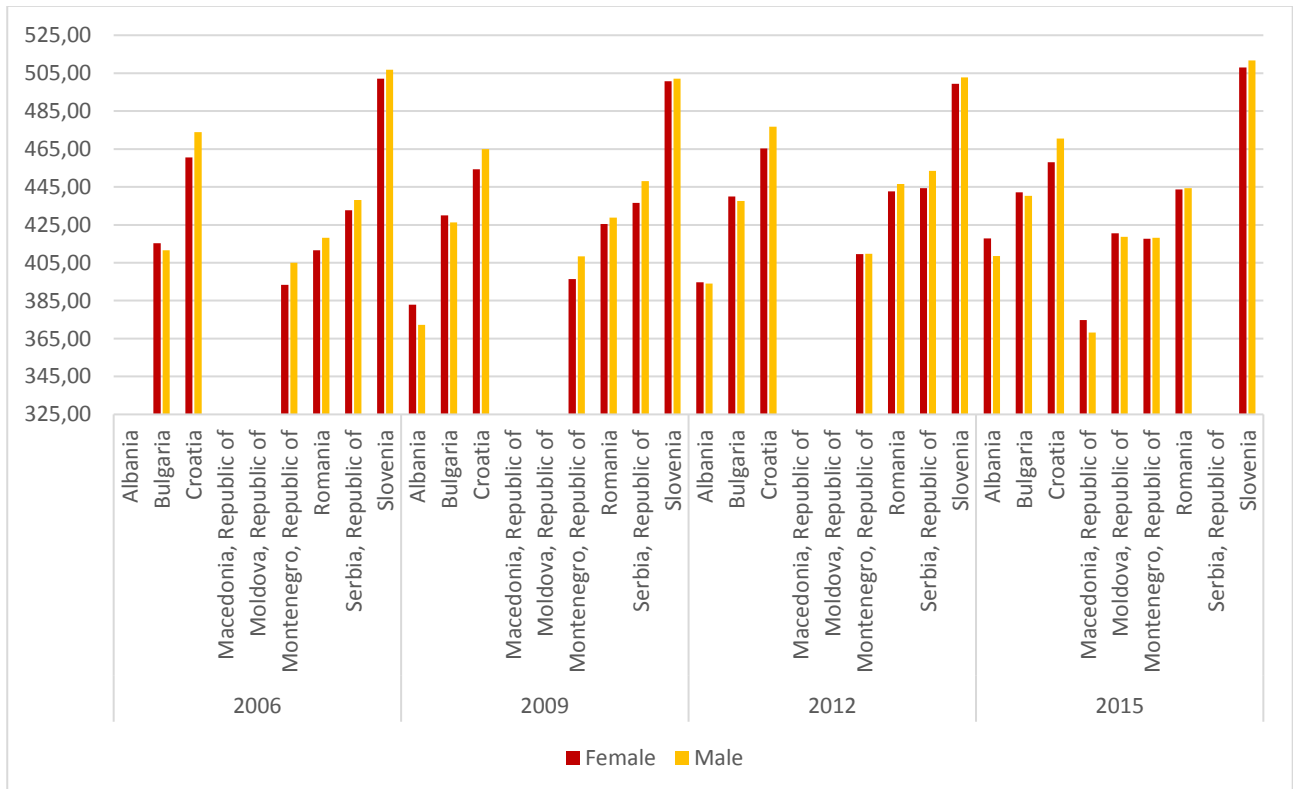
### PISA reading scores by gender, 2000-2015



**Note:** Missing data shows years when countries did not participate.

**Source:** National Center for Education Statistics, 2018.

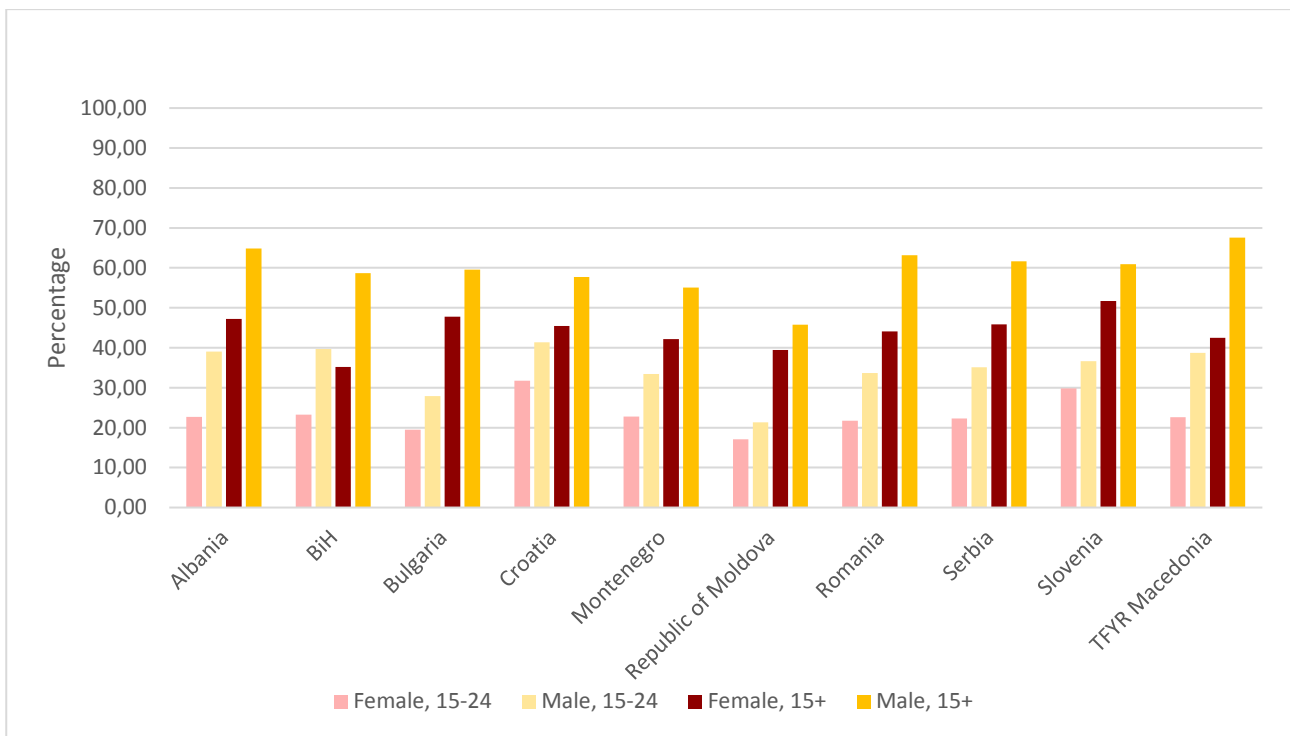
### PISA math scores by gender, 2006 - 2015



**Note:** Missing data shows years when countries did not participate.

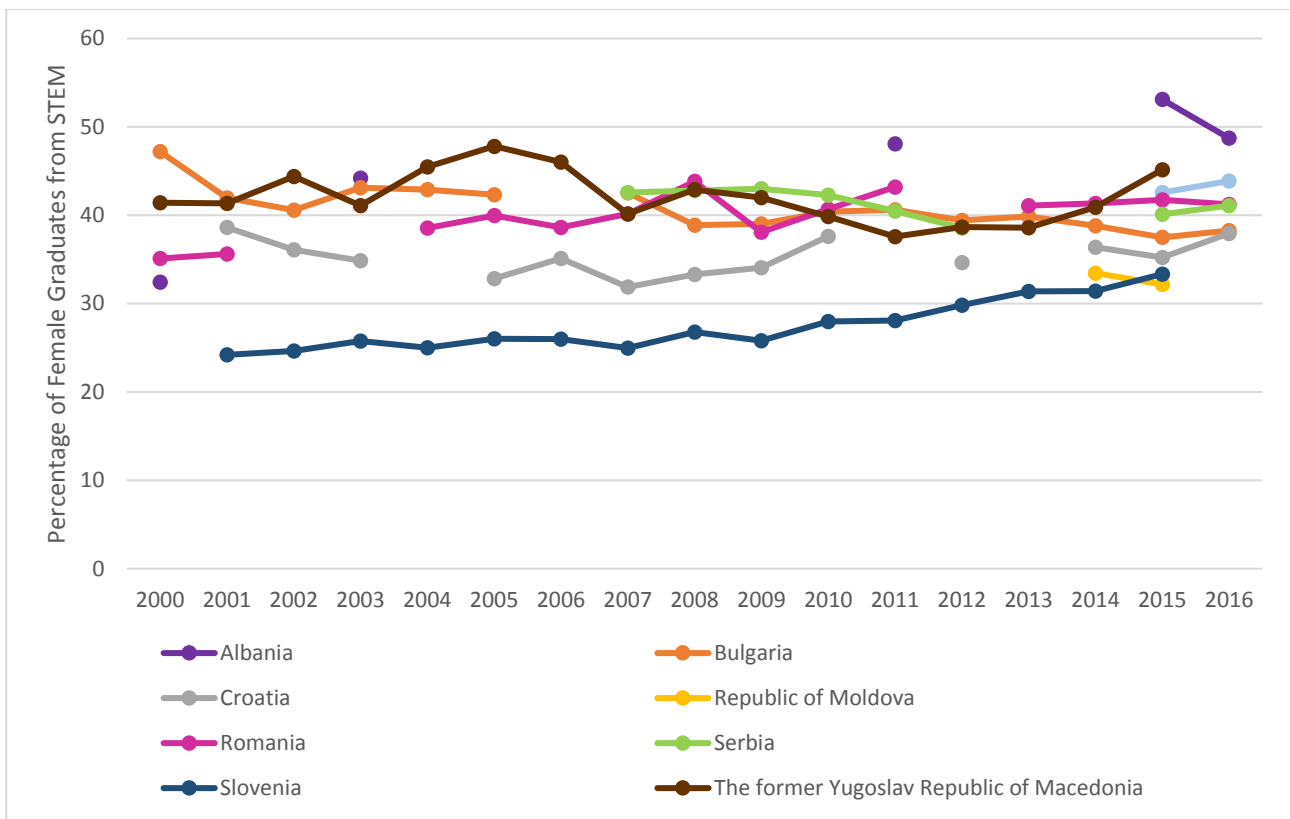
**Source:** National Center for Education Statistics, 2018.

## Annex 5: Labor Force Participation by Gender



Source: UIS, 2018.

## Annex 6: Progress for females in STEM – Graduates from STEM fields



Source: UIS, 2018.

Annex 7: Recommendations related to school-level factors influencing girls' participation, achievement, and progression in STEM<sup>12</sup>

School Level Factor Influencing Girls' Participation, Achievement, and Progression in STEM	Actions Schools Can Take to Ensure Positive Influence of these Factors
Psychological factors linked to assessment	Act to dispel tension and anxiety in STEM subjects and assessments; include examples of high-performing women as role models for female students; create a classroom environment in which mistakes are viewed as a learning opportunity.
STEM equipment, materials, and resources	Support girls' use of equipment and materials for science and math exploration; ensure that enough materials are available for all students and while resources are limited, ensure that female and male students have equal opportunities to access materials; promote interaction with equipment and technology in a way that appeals also to girls; Offer apprenticeship opportunities for both boys and girls in STEM settings where women are working, which could both encourage girls and challenge stereotypes
Interaction among students	Encourage collaborative group work; arrange the classroom in a way that promotes discussion, inquiry, and exploration; be aware of when boys dominate group work or patterns of male students assuming leadership positions
Interactions between students and teacher	Welcome questions, do not punish mistakes in the process of learning, ensure praise is not inequitably given to boys, actively encourage all students to question gender stereotypes in STEM
Teacher perceptions	Encourage self-evaluation of teacher beliefs and stereotypes; support recurring opportunities for in-service training on gender bias among teachers; as teachers' perceptions of their own competence in STEM subjects, impact those of female students, create a school environment in which female STEM teachers are actively encouraged and supported.
Presence of female teachers	Hire female teachers for teaching STEM subjects; Ensure that female teachers are of high quality and are actively working to dispel gender stereotypes in STEM subjects; Encourage pre-service, female teachers to specialize in STEM subjects, especially math
Quality of teaching/subject expertise	Encourage the hiring of highly qualified teachers; Offer ongoing opportunities for professional development; support mentorship programs within and among schools between new and long-term teachers; Support policies and practices related to regular teacher assessment

<sup>12</sup> Chart provides an overview and summary of factors and recommendations outlined in UNESCO's *Cracking the Code: Girls' and Women's Education in Science, Technology, Engineering and Mathematics*. Available at <http://unesdoc.unesco.org/images/0025/002534/253479e.pdf>

Teaching strategies	Implement strategies that encourage reflection and problem-solving, such as cognitive activation, student-centered learning, inquiry-based and participatory learning. Encourage students to ask questions, celebrate mistakes as part of the learning process, and promote deeper thinking through explanation and discussion.
Textbooks and learning materials	Use learning materials that reflect women in STEM positions; be aware of gender equity in images used in association with science; use materials such as textbooks, online content, and classroom posters that incorporate girls' experiences and interests (but be aware to not reinforce gender stereotypes by doing so)
Assessment procedures and tools	Enact assessment procedures that take into account girls' test-taking patterns (e.g., that boys may perform better in multiple choice exams); include questions that relate science and math material to what girls have learned and experienced in school; anonymous grading can help to ensure that teachers do not underestimate girls' ability or mark girls down compared to marking boys up.

**Source:** UNESCO, 2017a.

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