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Review of Efficiency of Services in Pre-University Education

Phase I: Stocktaking

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Abbreviations

APOSO	Agency for Preschool, Primary, and Secondary
BAM	Bosnia and Herzegovina convertible mark
BHAS	Bosnia and Herzegovina Agency for Statistics
BiH	Bosnia and Herzegovina
CCC	Common Core Curriculum
DepEd	Department of Education
EC	European Commission
ECA	Europe and Central Asia
ECE	Early childhood education
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FTE	Full-time equivalent
GDP	Gross domestic product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HCI	Human Capital Index
HDI	Human Development Index
HLO	Harmonized Learning Outcomes
ILOSTAT	International Labour Organization Statistics
LSG	Local self-government
MEC	Ministry of Education and Culture
MES	Ministry of Education and Science
MoE	Ministry of Education
NEET	Not in education, employment or training
OECD	Organization for Economic Cooperation and Development
PISA	Programme for International Student Assessment
PS	Primary School
Q2	Second quarter
RS	Republika Srpska
STEM	Science, technology, engineering and mathematics
STEP	Skills towards Employment and Productivity
STR	Student-teacher ratio
TIMSS	Trends in International Mathematics and Science Study
TVET	Technical and vocational education and training
UMICs	Upper-middle income countries
UN	United Nations
UNDP	United Nations Development Programme
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

Education and human capital development are especially critical for Bosnia and Herzegovina given its efforts to gain EU accession by 2025 and boost productivity in the context of a declining population trend. However, available information on access and quality of pre-university education in Bosnia & Herzegovina (BiH) highlight key challenges. According to the World Bank’s Harmonized Learning Outcomes (HLO) database, learning outcomes in BiH are below that of the EU and regional peers and a skills mismatch exists between the education system and labor market. Public dissatisfaction is also high for the quality of primary and secondary education. Access can be improved across all levels of pre-university education, especially in preschool and inequities exist for the most vulnerable populations—students from minority, poor and rural backgrounds. Improving education outcomes are vital for boosting human capital development and growth in the country.

Low and declining levels of efficiency in the education system represent a major barrier to any effort to improve the quality of learning outcomes. In recent years, despite decreasing enrollment and some efforts to reduce the number of schools in primary and secondary education, the number of teachers have increased in both RS and FBiH. Consequently, current STRs and average class sizes are below international benchmarking for all levels of pre-university education, especially in primary education. There are also notable variations across cantons and municipalities indicating inefficiencies.

The distribution of education spending is inefficient and inequitable, disproportionately skewed towards personnel which leaves little room for needed investments to improve quality of service delivery. At 4.6 percent of GDP, BiH spends more than some peers in the region, but less than the EU and OECD averages of 5.1 and 5.2 percent, respectively. Per student spending relative to GDP per capita is also relatively high in BiH, compared to other countries. Nevertheless, there are notable variations in per student expenditure across entities and cantons. At 91 percent in FBiH and 87 percent in RS, personnel spending represents a large share of total spending, higher than the average in EU and OECD countries. This leaves little room for capital investments and other inputs that could improve learning, including preschool education for which there is high demand in BiH. The percentage of non-teaching staff is also nearly one-third of personnel costs, indicating that a large share of spending funds auxiliary work in schools that does not directly contribute to teaching and learning.

Teachers are a crucial resource that represent the majority of spending in the sector, yet structures in place are not well-designed to support or improve teacher performance. Teachers are paid higher than the average private sector salaries and on par with the public sector in BiH, which contributes to the attractiveness of the profession, but wages are not tied to performance which itself is not measured. Standards for teachers’ compensation are inconsistent across the country and teacher selection criteria in some cases consider non-meritocratic factors, such as years of unemployment. Though information on teacher workloads is limited, there is evidence that teachers’ sense of job satisfaction could be improved. Greater support for professional development would be an important entry point for improving job satisfaction and overall performance, given that in-service training appears to be a particularly weak link in the system. Pedagogical institutes have limited capacity, and teacher in-service training relies largely

on donor-funded programs. ICT tools to facilitate and streamline teachers' work could represent another important entry point. More effective support and management of teachers in BiH should be an important policy priority in the sector going forward as this would influence not just efficiency of spending but also quality of service delivery.

Fragmentation and the nature of decentralization in the system perpetuate inefficiencies and inequities across levels of education. BiH has fourteen government bodies responsible for education in a country of just 3.3 million people and 422,645 students. The administrative costs of such a system are prohibitive and help to explain the fact that a high percentage of education funding is allocated to salaries. Furthermore, the decentralization of education in BiH has resulted in a highly inefficient allocation of school resources, with significant disparities in per pupil funding between entities and cantons and by level of education. The lack of a central authority to legislate or impel lower bodies to act has created a fractured, uncoordinated system, and the central level of government is powerless to address issues of efficiency, quality, and equity in the system.

Finally, there are no mechanisms in place to systematically measure or monitor the quality of education inputs, outputs, or outcomes, and data do not feed back into the policy-making process. Although the legal framework regulating collection and systematization of data for the country is in place at state and entity levels and most cantons have adopted and harmonized their laws accordingly, education statistics and data are scattered. The BHAS compiles data from the entity institutes, however, they lack detailed student or teacher level data that would allow meaningful analysis. Furthermore, BiH does not have a state-wide student assessment system to measure learning across the country, and it does not participate regularly in international student assessments. Additionally, Pedagogical Institutes lack the capacity to support and regulate teachers' professional development. Thus, the limited internationally comparable statistical data, adequate indicators, and accountability mechanism on education quality in BiH are recognized as significant obstacles for setting and monitoring concrete policy goals in education in BiH.

Although this report does not contain comprehensive policy recommendations, it does identify several directions for further analysis with a view towards improving the quality of service delivery. Mechanisms to improve the transparency and efficiency of resources in the system are needed. These directions include, for example, shifting from input-based to formula-based funding, introducing more mechanisms for assessing teacher performance and supporting teacher professional development, and strengthening the system of measuring student learning and school performance. While this report was not intended to outline comprehensive policy recommendations, the findings do indicate several different directions for consideration and further analysis. Without pursuing at least some of these directions, the education system is likely to remain on its current path which will imperil the potential for human capital in the future.

I. INTRODUCTION

1. **This report provides updated analysis on the current distribution of resources in pre-university education and identifies directions for further policy analysis, but it does not provide comprehensive policy recommendations.** This report provides updated available analysis on sector priorities, demographic trends, coverage, system performance and education outcomes, with a focus on the current distribution of resources in pre-university education in selected entities and cantons. It focuses on pre-university education given that it accounts for the vast majority of students and teachers in the system, as well as about 75 percent of the fiscal resources dedicated to education. The report is based on available administrative data and expenditure and payroll data for RS and FBiH (see Annex 1), though low data availability represents an important limitation.

2. **This report divides the analysis into five analytical sections and a final summary of findings.** *Section II (Context)* describes the economic and demographic backdrop for the analysis. *Section III (Overview of the Education System)* provides a summary of key features of the education system structure in BiH pertaining to governance, quality assurance, and financing. *Section IV (Benchmarking Education Outcomes)* assesses the performance of the education system in BiH using standard measures of access, equity, quality of service delivery, learning outcomes, and external efficiency. *Section V (Efficiency of Resource Use in Education)* looks at expenditures and efficiency of spending from a comparative perspective with a focus on staffing and organization of instruction. *Section VI (Teacher Development and Management)* explores available information on teacher policy and practice as an important link between education spending and service delivery. Finally, *Section VII* contains a brief summary of main findings. A note on data sources is contained in Annex 1, and additional analyses are contained in Annex 2.

II. CONTEXT

3. **Increasing the quality and efficiency of public education is vital for boosting Bosnia and Herzegovina's (BiH) human capital and economic development.** Human capital consists of the knowledge, skills, and health that people accumulate throughout their lives, enabling them to realize their potential as productive members of society.¹ There is mounting global evidence that countries need to invest more in human capital to sustain economic growth, prepare workforces for the more highly-skilled jobs of the future, and compete effectively in the global economy.^{2,3} Skills encompass fundamental cognitive skills, such as math and reading, socioemotional skills (i.e. perseverance and social interaction), as well as job-related technical skills. Skills constraints become more acute as the economy grows and moves up the global value chain. This is especially critical for BiH, an upper middle-income country, which seeks to boost its prosperity and make progress towards European Union (EU) accession by 2025.

¹ World Bank (2018a).

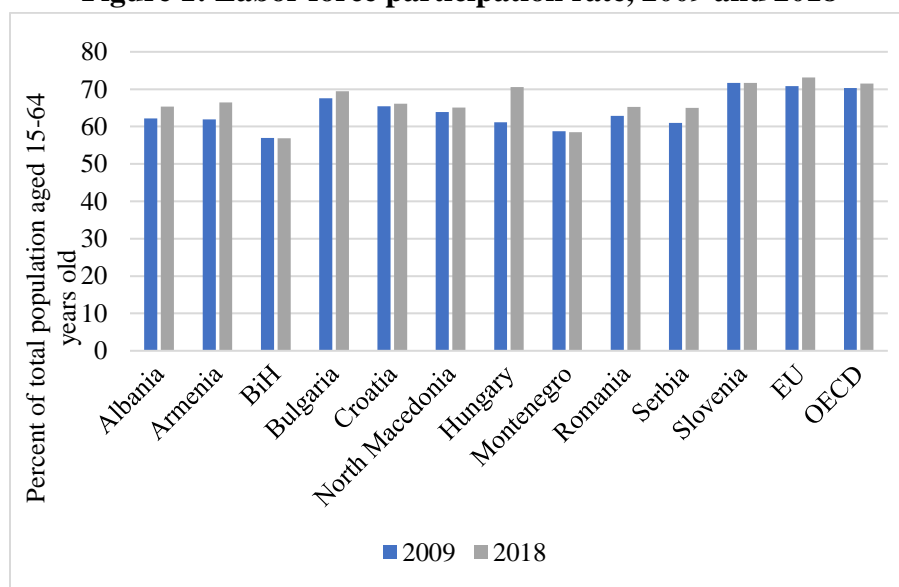
² World Bank (2018a).

³ World Bank (2018b).

4. **Economic growth in BiH remained steady in 2018 at an estimated rate of 3 percent, and is projected to pick up slightly in 2019, though progress depends on structural reforms and better use of human capital.** Economic growth has increased in recent years, which is a positive development for BiH. Between 1995 and 2017, living standards increased almost six-fold in BiH, albeit from a low base due to war. However, BiH is still among the poorest countries in Europe, and the pace of income convergence to European standards has slowed. Poor human development outcomes and a persistent jobs challenge that results in a considerable waste of working years have both contributed to lagging economic growth. For example, the youth unemployment rate in BiH as of 2018 was 38.8 percent of the labor force, compared to 15 percent in Bulgaria and about 9 percent in Hungary and Austria.⁴ According to the World Bank’s Human Capital Index (HCI), a child born today in BiH will be only 62 percent as productive when she grows up as she could be if she enjoyed a complete education and full health, which also contrasts with 72 percent in Croatia or 76 percent in Serbia.⁵

5. **Labor force participation is low, especially among youth and women.** In 2018, labor force participation in BiH was 57 percent and had not improved since 2009. It was the lowest among peers and significantly below the EU average of 73 percent (Figure 1). Total unemployment was also high at 26 percent and rising to 67 percent for youth and 56 percent for women in 2018.⁶ Moreover, nearly one-quarter of 15-24-year-olds were not in employment, education or training (NEETs) in 2017.⁷ Underutilization of human capital impedes economic development and contributes to outmigration.

Figure 1: Labor force participation rate, 2009 and 2018



Source: International Labour Organization, ILOSTAT database, 2018

⁴ World Bank (2019a).

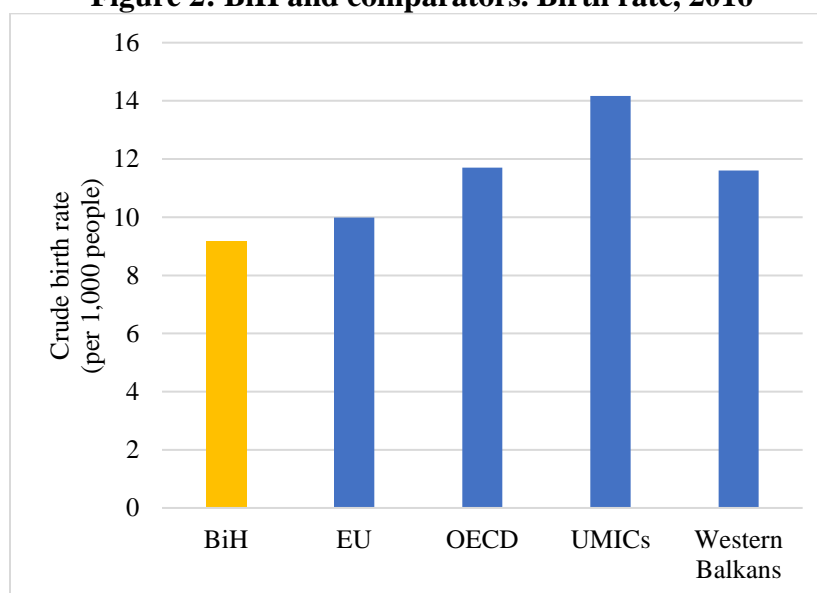
⁵ World Bank (2018a).

⁶ ILO (2019).

⁷ ILO (2019).

6. **Aging and strong outmigration—made worse by the jobs challenge—are contributing to a rapidly declining workforce, which means that the quantity of workers in the economy will need to be offset by increases in productivity.** Since 2010, the total working-age population (aged 15-64 years) has steadily decreased at a rate of 1 percent per annum. The decline in the total working-age population can be attributed to large outmigration due to political and economic turmoil in the region. BiH has the highest number of emigrants (in absolute) of the region, reaching 1.3 million in 2017, which is more than 40 percent of the resident population.⁸ In fact, in BiH, recent declines in unemployment are likely driven by higher inactivity and emigration, which both contribute to reductions in the number of those actively searching for jobs.⁹ Youth emigration is a particular concern in BiH. Nearly 50 percent of youth in BiH either plan to move abroad, or are actively considering it.¹⁰ Another factor contributing to the shrinking working age population is the declining birth rate, which was approximately 9.2 percent in 2016 and has not improved since 2010.¹¹ While aging demographics are not a new phenomenon among European countries, BiH’s birth rate is below the EU average of 10 percent and markedly below the estimated 12 percent average for the OECD and Western Balkans, and 14 percent for upper-middle income countries (UMICs) (Figure 2).

Figure 2: BiH and comparators. Birth rate, 2016



Source: World Bank databank, 2019

Note: Crude birth rate indicates the number of live births occurring during the year, per 1,000 population estimated at midyear. Subtracting the crude death rate from the crude birth rate provides the rate of natural increase, which is equal to the rate of population change in the absence of migration

7. **Skills misalignment is another significant constraint to firm growth and job creation.** A recent survey of employers indicates that over 50 percent of reporting firms believed that the general education system (including higher education) fails to produce the right skills needed for productivity (Figure 3). Employers noted that technical and vocational education and training

⁸ World Bank (2018d).

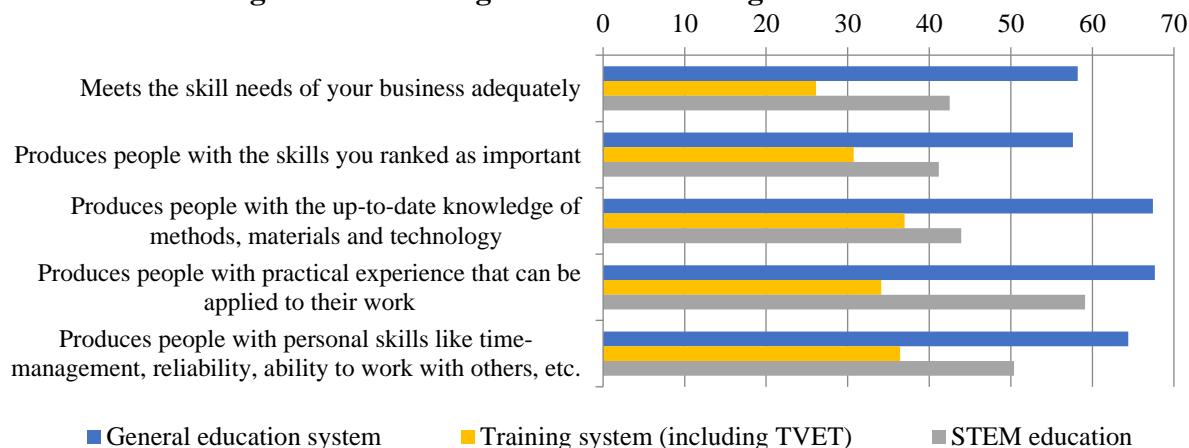
⁹ World Bank (2019a).

¹⁰ USAID (2018b).

¹¹ World Bank, World Development Indicators (WDI) database

(TVET) and skills training providers often did not provide students with up-to-date knowledge and technical skills. Meanwhile nearly 60 percent of employers felt that education in science, technology, engineering, and mathematics (STEM¹²) did not provide enough opportunities for practical experience, which can be applied to real-life working situations.¹³

Figure 3: Percentage of firms that disagree with a statement



Source: STEP Employer Survey, 2016-2017

8. **In addition to skills misalignment, labor demand is heavily distorted by the large footprint of the state, while the private sector role remains muted.** The public sector is a dominant actor and employer in BiH, accounting for one-third of all jobs in the country, which is high by regional and global standards. Public sector employment practices create considerable distortions in the incentives and behavior of market actors, especially on the supply side, which further skews the alignment between the education system and the labor market. The private sector cannot compete with public sector jobs: BiH public sector jobs carry substantial premia on many dimensions, including wages (10 percent gap), allowances (108 percent premium), and work hours (8 percent shorter).¹⁴ Perceptions of non-meritocratic recruiting in the public sector, combined with relatively few private sector jobs and a high degree of informality, all contribute to the likelihood of seeking emigration.

9. **Within this economic context, the World Bank is supporting the Government’s priority to strengthen public performance and enhance quality in the provision of social services, including education.** The World Bank and the European Commission signed an Administration Agreement in December 2017 to support the Government of BiH with public sector management reform. The objective of the trust fund that accompanies the agreement is to strengthen public employment controls in BiH in line with obligations outlined in the Reform Agenda 2015-2018. Within this context, the World Bank is conducting two sequential phases of the education sector analysis that will provide policymakers in BiH with analysis and

¹² In this case, STEM refers to a sub-set of study fields which are offered in both general and TVET education, depending on the field.

¹³ World Bank, 2016-2017 STEP Employer Survey (database), World Bank, Washington, DC (accessed January 10, 2019), 1_BiH_STEP_Employer_OK_DS.xlsx.

¹⁴ World Bank (2019b).

recommendations to governments in Federation of Bosnia and Herzegovina (FBiH) and Republika Srpska (RS) to improve delivery of pre-university education focusing on efficiency, access, and quality. Results from the first phase of stocktaking analysis, completed in 2019, will be used to inform ongoing consultations and additional analysis under the next phase in 2019-2020.

III. OVERVIEW OF THE EDUCATION SYSTEM

Structure

10. **Pre-university education provision is mostly public and uniform across the country.**¹⁵ Public primary and secondary education is free in BiH. The total number of students served in pre-university education for FBiH and RS is approximately 422,645 (Table 1). The structure of the education system is consistent across all jurisdictions with compulsory education consisting of 9 years of primary education. One year of preschool preparatory education for children aged 5-6 is also compulsory in 7 of 10 cantons in FBiH. However, preschool is recommended rather than compulsory in RS.¹⁶ The 9 years of compulsory education in BiH is slightly below the EU and OECD averages of 10 years (Figure 4).

Table 1: Number of Pre-University students enrolled by level of education (2018)

Number of students	Preschool	Primary Schools	Secondary			Total number of students	Share of total students in BiH
			General	TVET	Other*		
Una Sana	1,398	21,862	1820	7350	326	32,756	8%
Posavina	158	2,246	226	934	0	3,564	1%
Tuzla	2,484	38,026	2792	12425	749	56,476	13%
Zenica-Doboj	2,017	33,501	3422	10229	355	49,524	12%
Bosnian Podrinje	155	1,884	184	780	0	3,003	1%
Central Bosnia	1,034	20,953	2021	7545	521	32,074	8%
Herzegovina-Neretva	2,317	17,230	2425	5251	413	27,636	7%
West Herzegovina	901	7,651	1490	2283	30	12,355	3%
Sarajevo	4,221	37,077	5199	9763	964	57,224	14%
Canton 10	408	4,602	674	1278	5	6,967	2%
FBiH	15,093	185,032	20253	57838	3363	281,579	67%

¹⁵ The vast majority of schools in Bosnia & Herzegovina are public, with a small share (less than 5 percent) of non-public secondary schools.

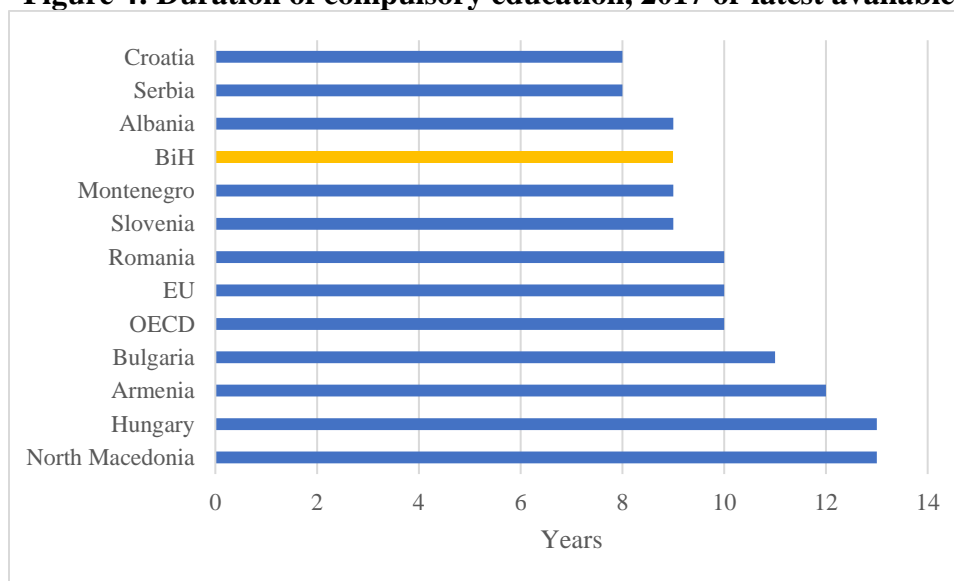
¹⁶ USAID (2016); MoCA (2018).

RS	10,240	90,995	8875	30831	125	141,066	33%
BiH	25,333	276,027	29,128	88,669	3,488	422,645	100%

Source: FBiH and RS statistics manuals, 2018

*Note: “Other” includes religious, arts, and special education schools

Figure 4: Duration of compulsory education, 2017 or latest available



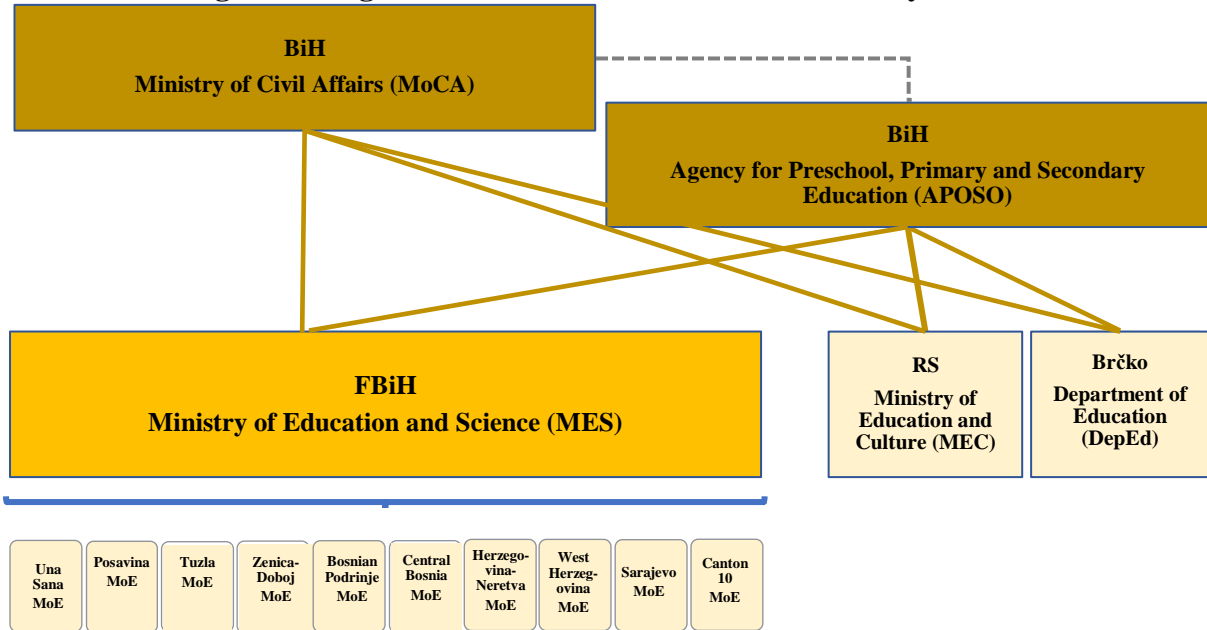
Source: UNESCO, UIS, 2019

Governance and quality assurance

11. **The BiH education system is highly fragmented, with multiple layers of administration.** BiH has fourteen government bodies organized into three tiers—state, entity/district, and canton (Figure 5).¹⁷ Education is governed at the entity level in RS, district level in Brčko District, and cantonal level in FBiH. The main decision-makers are the Ministry of Education and Culture (MEC) in RS, the Department of Education (DepEd) in Brčko District, and the 10 Cantonal Ministries in FBiH. The state-wide institutions including Ministry of Civil Affairs (MoCA) and the FBiH Ministry of Education and Science (MES) have coordinating roles, while the Agency for Preschool, Primary and Secondary Education (APOSO) is a state-level technical body responsible for standards and evaluation of education quality. This decentralized organizational setup of the education sector creates significant challenges for establishing a shared strategic vision and objectives for the education sector in BiH, and for organizing resources efficiently to achieve those objectives.

¹⁷ World Bank, Eurostat data, 2019; data from statistical offices, 2018.

Figure 5: Organizational structure of the education system in BiH



Source: Ministries of Finance for RS and FBiH, 2019

12. **A state-wide strategy for education used to exist in BiH until 2015, but it was too broad to facilitate planning and implementation.** Although some legislative and strategic documents that could be seen as the first steps to a more concrete reform have been adopted at the state level, their essential elements for the quality of education have mostly not been implemented in practice, due to both the lack of political will and the fact that these documents are generally written in broad terms and are not accompanied with concrete operational guidelines for implementation (Table 2). There is a state-wide strategy for preschool education. RS recently adopted the 2016–2021 Strategy of Education Development, but it is characterized by loosely defined often unmeasurable objectives, largely similar to the objectives of the vision of the now-expired BiH state-wide education strategy. FBiH does not have an overall education strategy, and neither do any of the cantons, although they are required to adhere to the broad state-wide laws on preschool, primary, and secondary education.¹⁸ It is important to note, since the expiration of the previous technical and vocational education (TVET) strategy in 2013, there has been no strategy for TVET at the state level.¹⁹ The findings suggest a need to review and improve upon the existing state-wide framework, along with its articulation at the entity and cantonal levels.

Table 2: Legal Framework and Strategy for the education sector at BiH level

Year	Decree
2003	Framework Law on Primary and Secondary Education in BiH
2007	Framework Law on Preschool Education in BiH
2007	The Law on Agency for Preschool, Primary and Secondary Education
2008	Framework Law on Secondary Vocational Education and Training
2008–2015	Strategic Directions for the Development of Education in BiH
2013–2017	Strategy for Development of Vocational Education and Training in BiH

¹⁸ USAID (2017a).

¹⁹ USAID (2017a).

13. **There is no state-wide curriculum, but there has been a process to develop common learning standards.** Since 2008, the state-level Agency for Primary and Secondary Education (APOSO) has been attempting to develop a common core curriculum (CCC). However, a decade later this project remains incomplete in many subjects. Political objections have hampered the harmonization of curricula for the so-called national group of subjects—history, mother-tongue language and literature, geography, arts and music. In those subjects covered by the CCC, expected learning outcomes are detailed, but a framework for the actual curriculum is not included. Moreover, the responsibility for curricula and textbooks in FBiH have been further decentralized to the cantonal level. While approval of curricula is formally conditional on adherence to the state-level Framework Law on Primary and Secondary Education, the degree of compliance in practice is not known. Overall, this degree of decentralization has led to varying implementation of learning standards and the politicization of education in BiH.

14. **Moreover, the country does not systematically measure or monitor the quality of education inputs, outputs, or outcomes.** There is a legal framework in place for regulating collection and systematization of data for the country at state and entity levels, and most cantons have adopted and harmonized their laws accordingly.²⁰ However, education statistics and data remain scattered and inconsistent. The BiH Agency for Statistics (BHAS) compiles data from the entity institutes, however, they lack detailed student or teacher level data that would allow for meaningful analysis. Furthermore, BiH does not have a state-wide student assessment system to measure learning across the country, and it does not participate regularly in international student assessments. The last international assessments BiH participated in was the Trends in International Mathematics and Science Study (TIMSS) in 2007. However, BiH did participate in the Programme for International Student Assessment (PISA) in 2018, and results will be available in December 2019. The lack of internationally comparable statistical data and adequate indicators on education quality in BiH is recognized as a significant obstacle for setting and monitoring concrete goals in developing education in BiH.²¹

Financing

15. **Financing for pre-university education is also highly fragmented.** Funding for education is largely provided by the entity (in the case of RS), canton, and municipality budgets, with funding from the central state-level government almost non-existent (Figure 6).²² Furthermore, the distribution of funds depends on the level of education and the entity or canton. Neither the entity governments nor cantonal governments receive any earmarked allocations for education from the higher levels. Thus, decision criteria are determined by the ministries of education for each entity/canton based on their financial capacities²³ and policy priorities. The

²⁰ Law on Statistics in BiH, Law on Statistics in Federation of BiH and Law on Statistics of Republika Srpska.

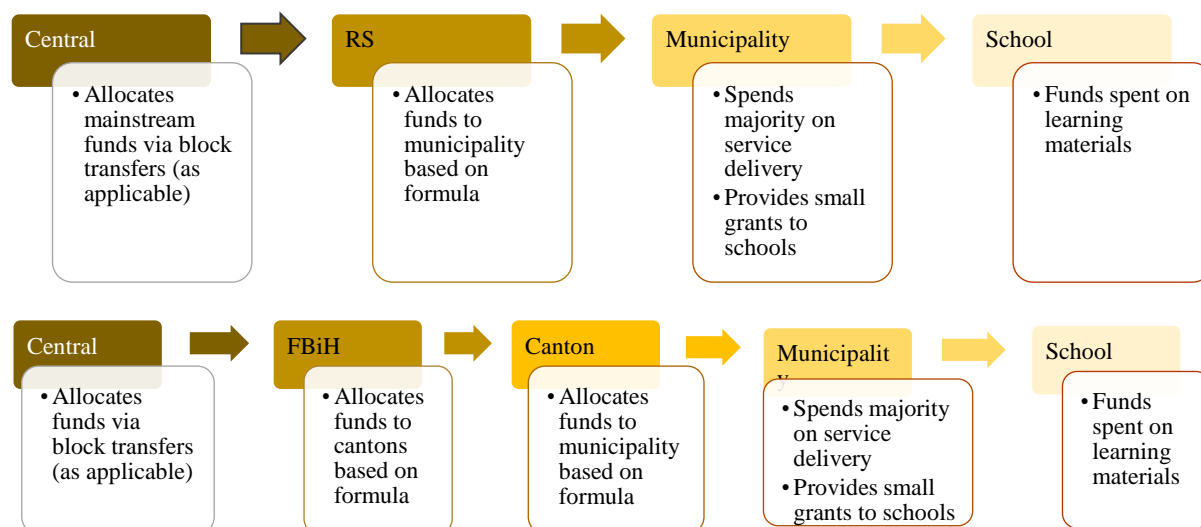
²¹ EPRD (2013).

²² UNESCO (2010).

²³ The state-level government distributes VAT revenues to entities and Brčko District. All other revenue types (e.g. corporate and personal income tax) are collected and distributed by entities, cantons, and municipalities. Additionally, the respective governments may levy various fees at the entity and cantonal levels. Hence, entities,

Municipal Councils also normally determine wider school needs and interests in its jurisdiction and fund them accordingly. Multiple streams of funding and the highly decentralized nature of funding across entities/cantons increase potential for inefficient and inequitable distribution of resources in education. According to a 2015-2018 audit of the RS primary education resource management, the implementation of the criteria for funding primary schools in RS was not adequate to ensure efficient and equitable distribution of resources (Box 1). More information regarding criteria and its implementation is needed to determine the efficiency and equity of FBiH's financing mechanism.

Figure 6: Allocation of funds to education in BiH



Source: Ministries of Finance for RS and FBiH²⁴, 2019 and respective legislation on revenue allocation

16. **A key finding is that financing for pre-university education remains based on inputs, rather than the number of students, which contributes to inefficiencies and non-transparent use of resources.** Financing is allocated largely on the basis of standards and norms which define the minimum, optimal and maximum class sizes, the number of teaching hours, number of non-teaching staff, and other recurrent expenditures. This means that school budgets are defined largely based on norms and standards, which themselves tend to be based on the number of classes rather than number of students. A move towards output-based financing, as recommended in previous public expenditure reviews, would help to enhance efficiency, equity and transparency in school financing.

17. **Expenditure data is highly aggregated and generally not reported in a transparent manner, which diminishes the ability of stakeholders to hold authorities accountable for the use of resources in the education system.** Expenditure data is reported through budget execution reports but is not presented or linked to education outputs or outcomes. This means that parents

Brčko District, cantons, and municipalities receive their share of VAT revenues (the greatest share in their total revenues) plus a significant share of other revenues. However, these are all mainstream revenues, and not earmarked for education.

²⁴ The FBiH government allocates both mainstream funds as well as select earmarked transfers to educational institutions. RS and cantons decide how much to give to individual schools. Municipalities also provide co-financing.

and communities have little information on how many resources are being invested in their child's school. It also limits the ability of education policymakers to compare expenditures with results in the sector.

Box 1. Performance audit report: managing primary school resources 2018

The RS Supreme Audit Institution carried out a performance audit of primary schools in RS between a period of four years, 2015-2018. The main objective of this audit was to determine whether management of the resources and the network of primary schools was efficient and based on principles of accessibility and equal conditions for work and learning. The audit looked at institutions' competencies in adjusting the school network, allocating funds for schools, and planning and allocating students' transportation and related allowances. The audit included key resource management institutions of the primary education system, including the Ministry of education and culture, 11 municipalities, and 34 primary schools.

The audit concluded that resource management of primary schools did not achieve a possible level of efficiency and equity in conditions and standards for students. The investigation showed that the funding allocation method defined by the rulebook on financing, did not seem adequate and was poorly applied in practice. For instance, the ministry did not base annual budget allocation to schools on adequate norms and prioritization of investments to decrease any differences in conditions and equipment of schools. Also, most municipalities did not provide timely and well justified proposals for school enrollment areas and school network, which are criteria for allocating resources in primary schools. Finally, given the limited regulatory framework for resource management, primary schools have different management practices, which perpetuate inequitable resource distributions and education quality.

Source: RS Supreme Audit Institution, 2018

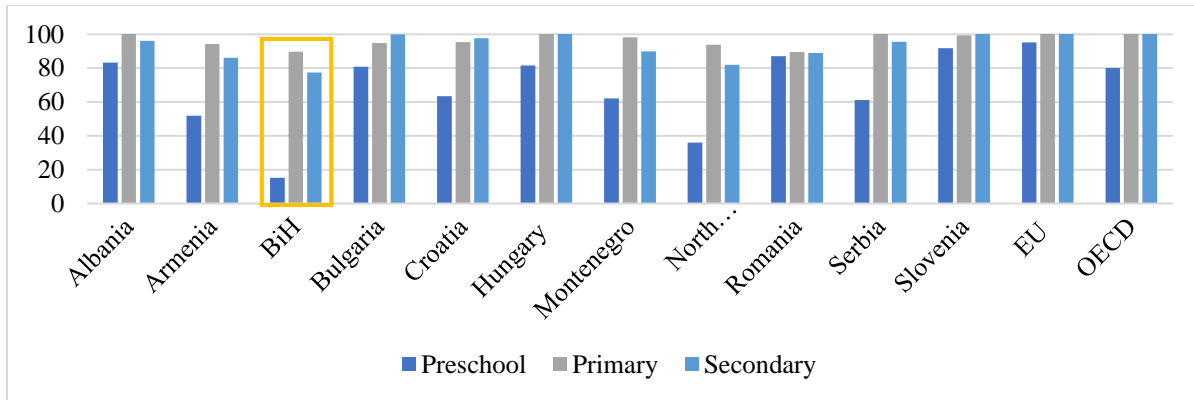
IV. BENCHMARKING EDUCATION OUTCOMES

Access, equity, and internal efficiency

18. **Access to pre-university education in BiH is relatively high, but there is room for improvement, particularly in preschool education.** BiH's gross enrollment in primary education and secondary education, is fairly high at 90 and 77 percent, respectively (Figure 7).²⁵ Near gender parity has also been achieved in all levels of pre-university education. Nevertheless, BiH has one of the lowest levels of access to pre-primary education among peers. Access to early childhood education (ECE) in BiH is especially low at a mere 15 percent, which is in stark contrast with the EU average of 95 percent.

Figure 7: BiH and comparators: Gross enrollment rate by level of education, 2016 or latest available

²⁵ It should be noted that BiH does not calculate or report gross or net enrollment rates at the state- or entity-level.



Source: Comparator country data from UNESCO UIS, 2018; EU data from Eurostat, 2018; BiH data calculated by World Bank staff using data from MoE and UN Population data, 2018

19. Low capacity in urban areas is one factor explaining low enrollment in preschool. Despite high demand among parents for preschool education in certain urban areas (there are waiting lists in larger towns such as Sarajevo, Banja Luka, Brčko, and Mostar), existing infrastructure and funding are insufficient to meet this demand.²⁶ In 30 of BiH's 143 municipalities, not a single school has a preschool program.²⁷ In rural areas, higher levels of unemployment, less disposable income, and cultural norms about childrearing limit ECE enrollment. The low ECE access in BiH is of great concern considering strong global evidence on the importance of ECE in helping develop foundational cognitive and socioemotional skills, and helping individuals escape inter-generational poverty.²⁸ Additionally, a positive externality of greater participation in ECE is the effect it can have on increasing female labor force participation, which is of particular interest in BiH. However, learning gains from expanding access to preschool are conditional on the quality of services, so the quality improvement agenda is directly connected to the agenda of expanding access.

20. Access to ECE also disproportionately benefits the children of working parents, rather than the most vulnerable children who would benefit most. According to the recently developed Platform for the Development of ECCE in BiH 2017-2022, the largest group of children attending ECCE institutions in BiH are children from urban areas whose parents are most frequently both in paid employment. These children account for around 75 percent of the total number of children in preschools, whereas children from rural areas or with unemployed parents represent only 1-2 percent of those attending preschools. This indicates that ECE currently benefits children from better off households, even though research shows that vulnerable children benefit the most from ECE interventions.

21. There are disparities between entities, with ECE and secondary enrollment rates lower in RS than in FBiH. According to UNICEF's 2011-2012 Multiple Indicator Cluster Survey, there were notable differences in ECE access between the entities, with enrollment rates of approximately 14 percent in FBiH and 10 percent in RS.²⁹ In 2013, the gross enrollment rates

²⁶ USAID (2016).

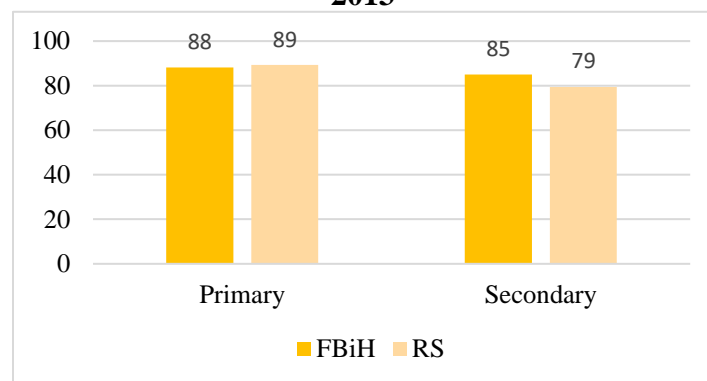
²⁷ USAID (2016).

²⁸ World Bank (2015).

²⁹ UNICEF (2012).

in primary education for FBiH and RS were similar at 88 percent and 89 percent, respectively (Figure 8). However, secondary enrollment in RS was 79 percent, compared with FBiH's enrollment of 85 percent.

Figure 8: FBiH and RS: Gross enrollment rate for primary and secondary education, 2013



Source: World Bank staff calculation using FBiH and RS Statistics Manuals, 2013 and BiH Census, 2013

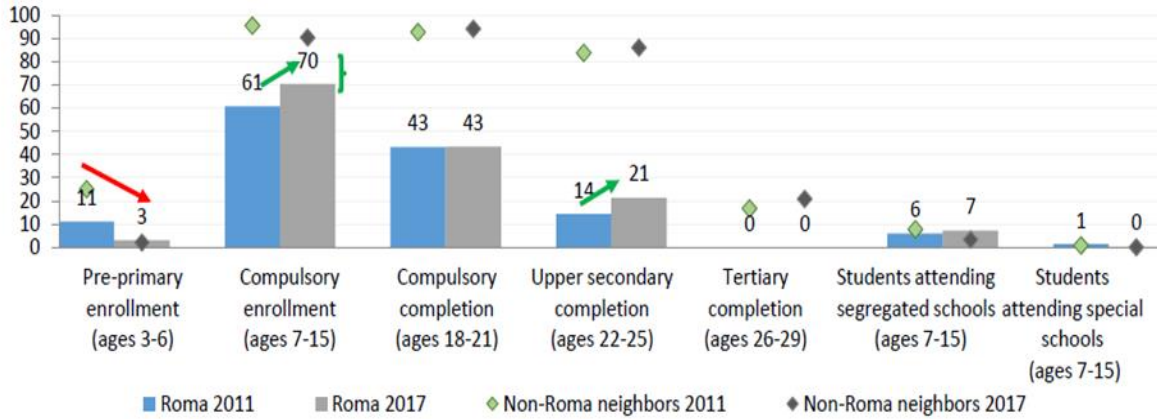
22. **Inequities also exist among minorities, the poor and rural dwellers.** ECE enrollment rates were especially low in rural areas where fewer than 8 percent of children attend any type of ECE.³⁰ Children from poor and rural backgrounds are also less likely to attend secondary school and more likely to drop out of school. Roma are recognized as the largest, most neglected and vulnerable minority in BiH.³¹ Despite recent improvements, Roma enrollment in education is significantly lower than non-Roma students, especially in primary and secondary education (Figure 9). Furthermore, a striking 3 percent were enrolled in preschool education in 2017, down from 11 percent in 2011. Early dropout rates are also high, especially among Roma girls. Reasons mostly attributed to the discrepancies in participation of vulnerable groups in education include the cost of education and related expenses, child marriage in the case of Roma girls, and tradition and cultural norms.³² The high inequities are especially critical for BiH as the Roma are a younger population than the non-Roma population and therefore more likely to be underserved by the education system.

Figure 9: Changes in enrollment for Roma and non-Roma population in BiH, 2011-2017

³⁰ UNICEF (2012).

³¹ According to the latest BiH population census (2013), 12,479 people in BiH self-identified as Roma, which corresponded to approximately 4 percent of the total population. Nevertheless, the number may be underestimated due to social stigma.

³² Robayo and Millan (2019).



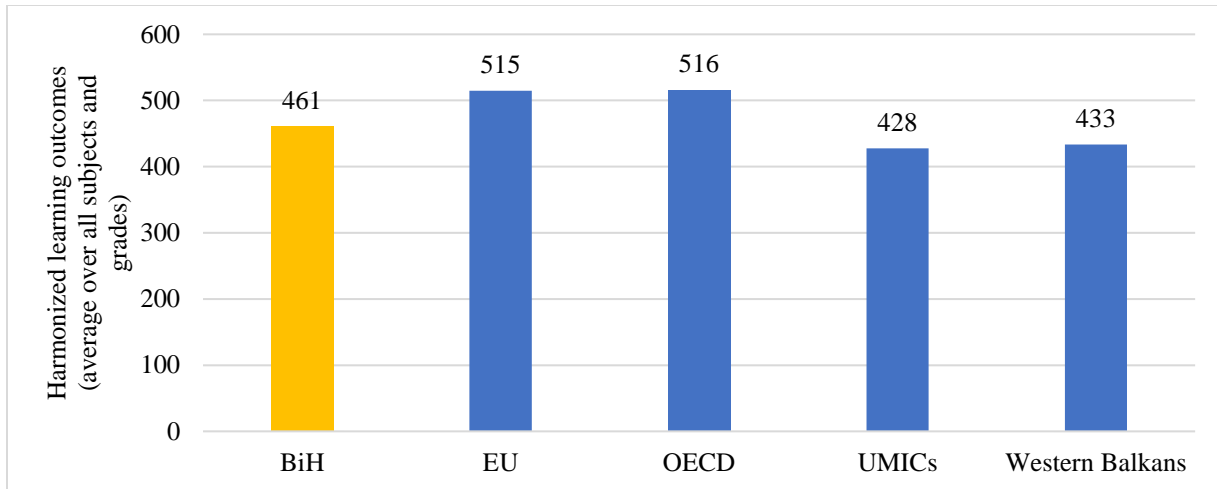
Source: World Bank and UNDP estimates based on unweighted 2011 and 2017 UNDP-World Bank-EC Regional Roma Survey data

Quality of education

23. **Based on available internationally comparable data, learning outcomes are relatively low in BiH.** According to the World Bank’s Harmonized Learning Outcomes (HLO) database, although BiH performs above the average of its income group and the Western Balkans, it substantially lags the EU and OECD averages by 54 and 55 points, respectively (Figure 10).³³ Moreover, despite relatively high expected years of schooling by age 18 (about 11.7 years), after accounting for quality, students can expect to receive an equivalent of only 8.6 years of schooling (Figure 11). In other words, for the average student, an average of 3.1 years of schooling is “wasted” in the sense that it does not produce learning. Although this learning gap exists in all countries, it is substantially larger in BiH compared to neighboring Serbia (2.2 years) and in other countries with high-performing education systems, such as Singapore (1 year), Japan (1.3 years), and Finland (1.7 years). In the context of a declining population and shrinking workforce, together with the country’s EU accession ambitions, BiH cannot afford to waste the potential of its young learners.

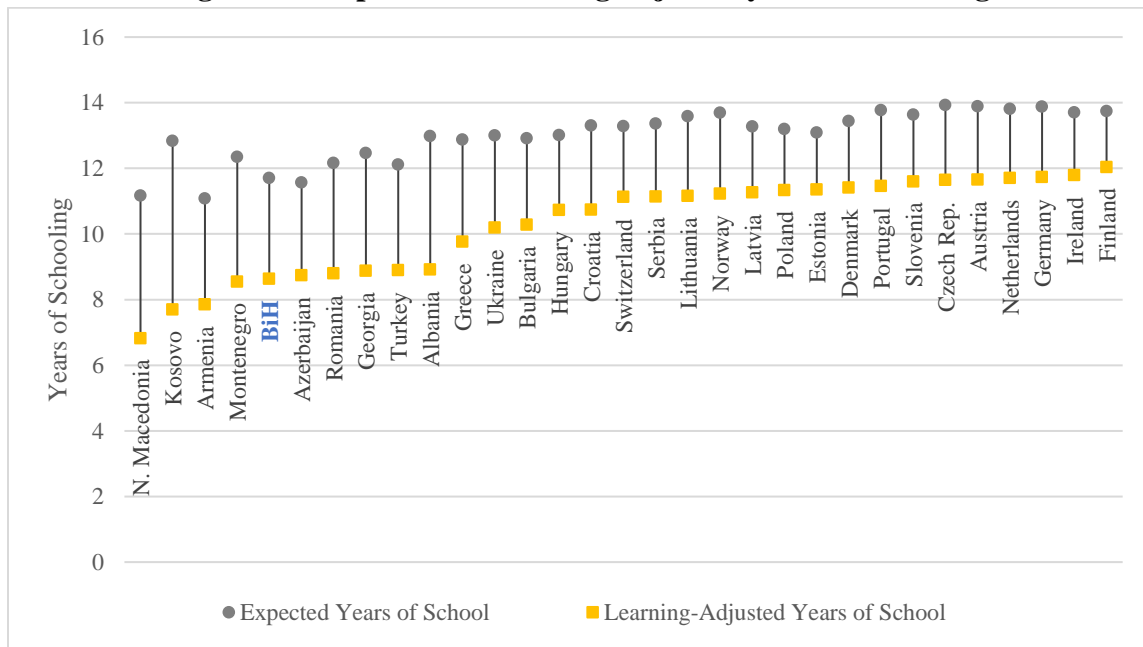
Figure 10: Learning outcomes by region and income

³³ For BiH, the HLO database uses TIMSS 2007 data as this is the most recent international student assessment data for the country. However, this will be updated once data for PISA 2018 is available.



Source: World Bank staff calculations using HLO database, 2019

Figure 11: Expected vs. learning-adjusted years of schooling



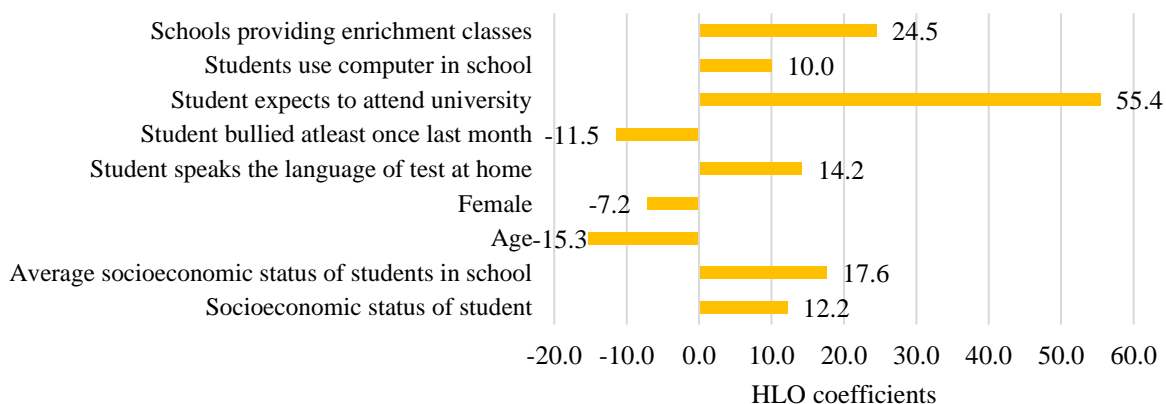
Source: Human Capital Index, 2018

Note: BiH data based on TIMSS 2007 8th Grade performance

24. **In BiH, learning outcomes are strongly correlated with students’ aspirations, socioeconomic status, and other school characteristics.** According to a deeper analysis using the World Bank’s HLO database, the expectations of BiH students to attend university was the strongest individual factor explaining variation in learning outcomes, meaning that this single factor explained the largest share of variation in learning performance (Figure 12). This is an interesting finding, given that aspirations are strongly influenced by socioeconomic status and the school’s learning environment, both of which also and independently influence learning outcomes. For example, factors including the school’s provision of enrichment classes, the average socioeconomic status of students in a school, and students’ use of computers at school were also

significant factors in driving student performance. Individual socioeconomic status also matters, consistent with international research: only the top 10 percent of students belonging to poor families can compete with students belonging to rich families.

Figure 12: Factors contributing to student achievement

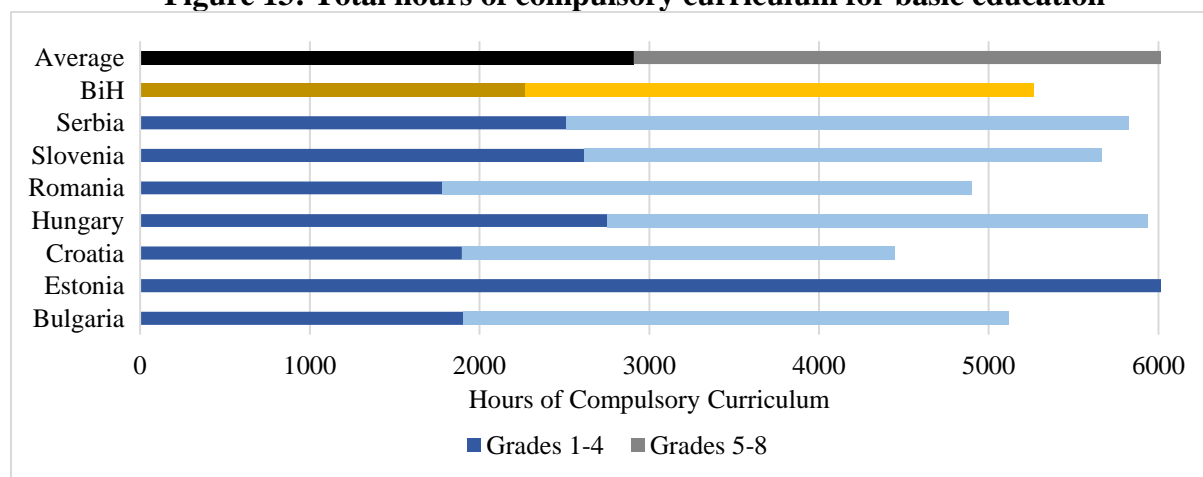


Source: World Bank staff calculations using HLO database, 2019

Note: All results above are statistically significant at more than or equal to 99 percent confidence level, except for “Student speaks the language of test at home,” which was statistically significant at more than or equal to 90 percent confidence level

25. **BiH also has relatively low instructional time compared to other countries, which negatively affects students’ opportunity to learn—a key element of education quality—as well as the efficiency of service delivery.** BiH has relatively low average compulsory instructional time allocations compared to peers (Figure 13). The difference between BiH and the average for other comparator countries is equivalent to over 100 days of schooling for Grades 1-4. Not only does this impact quality of education, but it also influences the efficient use of instructional time and teachers’ working hours. This is an important consideration, since the demand for teachers is driven by the curriculum and teachers’ working hours (along with class size norms).

Figure 13: Total hours of compulsory curriculum for basic education



Source: World Bank staff calculations using data from European Commission, 2018

26. **The duration of preschool programs is also relatively low, and there is little information on the quality of learning opportunities provided in preschool.** In FBiH, most preschool programs for the year prior to starting primary school (known as grade 0) last for around 150 hours, distributed over the year in blocks of two hours a week. In RS, it is organized over a period of three months in blocks of three hours per day, amounting to a total of 190 hours. Pedagogical experts note that 150-190 hours is not sufficient to achieve even basic results, particularly in cases where the visits are infrequent. By comparison, the average number of weekly hours in the EU is 29 and the program lasts for a full year.³⁴ This suggests that the organization of instruction at the preschool level could be expanded and strengthened to give children more time for early learning and build the foundational skills required to succeed in primary school. In general, more information about the quality of preschool education would be important, since any gains to be achieved through expanding preschool access are conditional on the quality of services.

27. **In terms of perceptions of quality, public dissatisfaction with the system is high and many believe that skills are not enough to be successful.** In 2016, a USAID survey on basic education in BiH revealed that only about 25 percent of citizens expressed satisfaction with secondary education, and about 30 percent expressed satisfaction for primary education.³⁵ The EBRD Life in Transition Survey (2016) found that nearly 40 percent of respondents were unsatisfied or very unsatisfied with the quality and efficiency of vocational education. A 2018 Tracer study of TVET also revealed that 67 percent of TVET graduates who responded believed practical skills training was lacking to a considerable extent (i.e. to a great or to some extent) during TVET and 63 percent reported a lack of equipment and training materials during their coursework.³⁶ Finally, less than 20 percent of low- and middle-income respondents to the Life in Transition Survey agreed that intelligence and skills are the most important factor for success, whereas nearly 50 percent instead selected political connections as being most important.³⁷

28. **Despite such perceptions, available information suggests that there is limited public demand to change the status quo in education.** Education is identified as a top priority for government spending, higher than social assistance, public infrastructure, housing, and environment (and roughly equivalent to health care).³⁸ However, very few people in BiH believe that education is a top development priority for the country. Only 5 percent of survey respondents in 2016 and 2017 identified education as a top priority for the development of BiH. Furthermore, only 6 percent identified education reform as among the top 3 priorities for the international community in supporting BiH.³⁹ This reflects a tension between maintaining and continuing to fund the status quo, versus supporting reforms that improve quality and respond to the public's demand for improved education services.

External efficiency

³⁴ MoCA (2018)

³⁵ USAID (2017b).

³⁶ GIZ (2018).

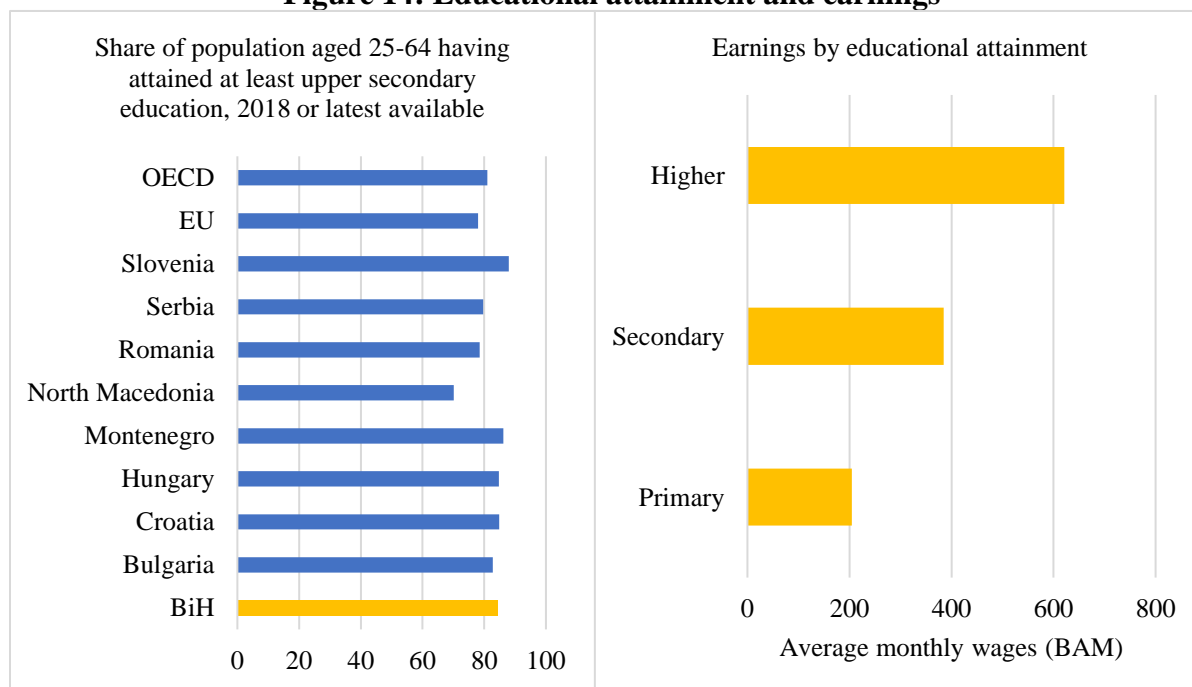
³⁷ EBRD (2016).

³⁸ EBRD (2016)

³⁹ USAID (2018a).

29. **In BiH, educational attainment is relatively high and linked to higher earnings.** In BiH, 84 percent of 25-64-year-olds have attained at least an upper secondary education (Figure 14). This is higher than Western Balkan peers, Macedonia and Serbia (70 and 80 percent, respectively) and higher than the EU and OECD averages of 78 and 81 percent, respectively. Furthermore, higher educational attainment is correlated with higher earning potential in BiH. While this is expected on the aggregate, it is important to underscore that quality of learning achieved through higher levels of education—not just quantity of schooling—is key to human capital development.

Figure 14: Educational attainment and earnings



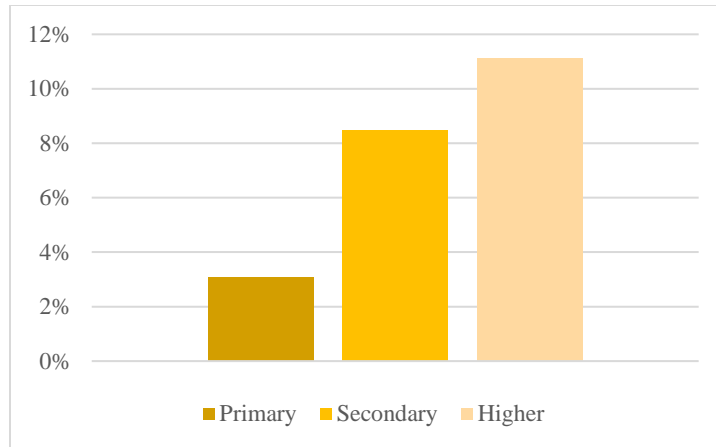
Source: Eurostat, 2018 and OECD, 2017 for comparator data; World Bank staff calculations using 2015 Household Budget Survey used for BiH data

Note: 'Higher' category includes specialization after secondary education and higher education

30. **Returns to education confirm there is a premium for high-level skills in the labor market.** An analysis of returns to education in BiH reveal that the returns to education are incremental with each level of education attained yielding higher levels of skills (Figure 15). This finding is aligned with the fact that employers in BiH are demanding a variety of high-level skills, and there is a premium for achieving them. These returns are roughly comparable with the overall rate of return in ECA of 7.3 percent and the world average of 8.8 percent.⁴⁰

Figure 15: Returns to education by level of education, 2015

⁴⁰ Psacharopoulos and Patrinos (2018)



Source: World Bank staff calculations using 2015 Household Budget Survey

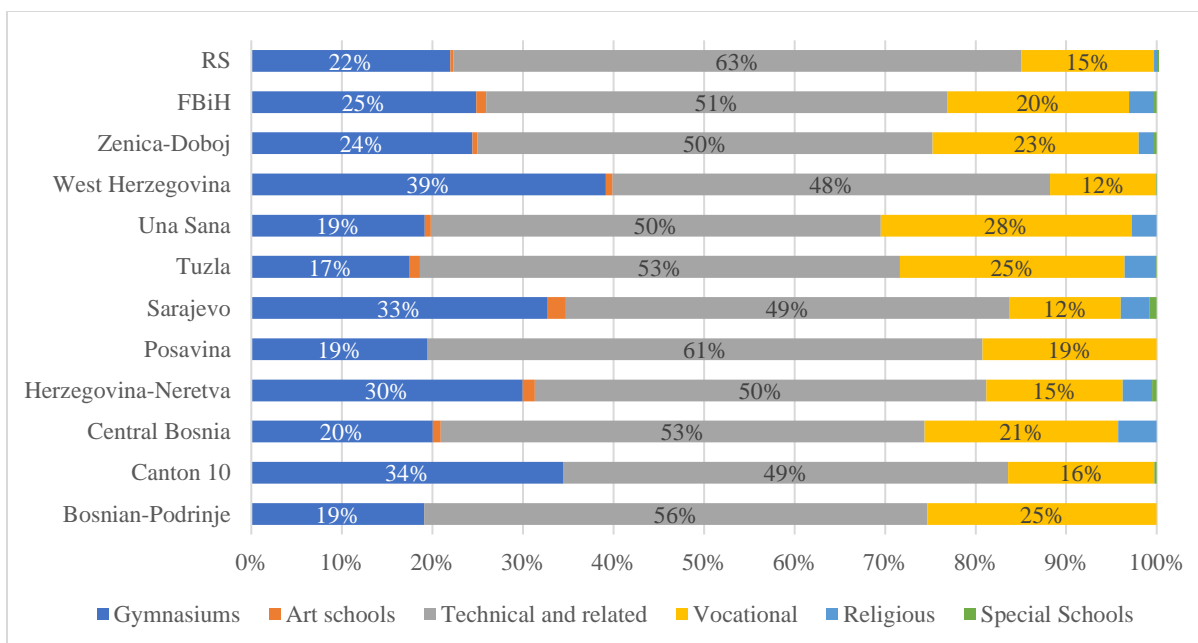
Note: Higher category includes specialization after secondary education and higher education

31. **Over 70 percent of students at the secondary level enroll in secondary technical and vocational schools, despite an apparent misalignment between TVET school offerings and the needs of the labor market.** While there is some variation within BiH, most students in FBiH and RS are enrolled in secondary TVET profiles (Figure 16). This may be explained by the fact that general education is perceived by both employers and the public as fostering even lower levels of skills than TVET. However, many TVET profiles are outdated and/or poorly equipped to provide the skills needed by employers.⁴¹ The Tracer Study completed by GIZ in 2018 found that only 51 percent of the employed TVET graduates had a job related to their profession, which half found through personal relations as opposed to career counseling.⁴² This suggests that the quality and relevance of TVET, and of secondary education in general, remain insufficient to support a successful school-to-work transition.

Figure 16: Distribution of enrollment in secondary schools, by profile, 2017-18

⁴¹ GIZ (2018).

⁴² GIZ (2018).



Source: World Bank calculations using data from statistical offices of BiH, 2018

32. **Despite the economic returns to higher levels of educational attainment, BiH has a very high incidence of youth unemployment and youth who are not in education, employment or training (NEET).** As of 2017, the youth unemployment rate in BiH was approximately 47 percent, compared to 44 percent in North Macedonia, 31 percent in Albania, 29 percent in Montenegro, and 27 percent for the Europe & Central Asia (ECA) region.⁴³ Even when looking only at the share of youth who are not in education, employment or training, approximately 1 in 4 youth in BiH are inactive. This suggests that the education system is not adequately equipping youth with the necessary mix of cognitive, socioemotional and technical skills to successfully transition into the labor force.

V. EFFICIENCY OF RESOURCE USE IN EDUCATION

33. **Evidence suggests that *how* funding for education is spent often matters more than *how much* is spent.** Many researchers have questioned whether and under what circumstances public school spending affects student outcomes. Several prominent researchers found no significant relationship between funding and educational outcomes, usually defined as student achievement on standardized tests.⁴⁴ However, more recent research shows that increased funding can improve educational outcomes, when that funding is spent upon certain kinds of programs or improvements.⁴⁵ This section of the report aims to analyze how BiH education spending is allocated across all levels of pre-university education and measures key indicators to determine the efficiency of resources that have been allocated to education. Where data was available, international and entity/cantonal level benchmarking has been conducted.

⁴³ World Bank WDI database

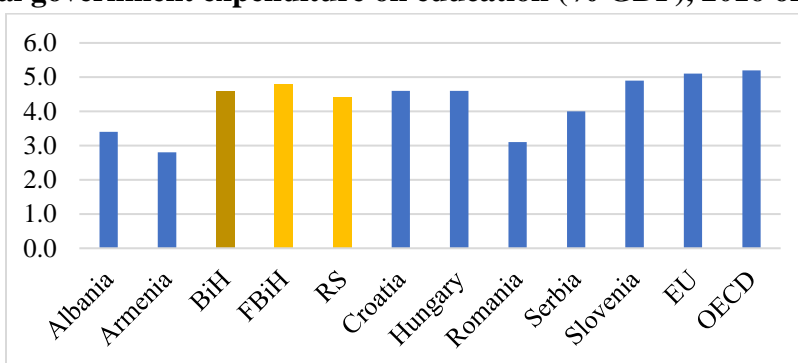
⁴⁴ Hanushek (2003); Coleman et al. (1966).

⁴⁵ Jackson, Johnson and Persico (2016).

Composition of Public Spending on Education

34. **Education spending in BiH is roughly on par with other countries in the region, as well as the EU.** Total government expenditure on education as a percent of GDP is approximately 4.6 percent in BiH, slightly higher in FBiH at 4.8 percent, and 4.4 percent in RS (Figure 17). These levels are marginally higher than education spending levels of other peers in the region, except for Croatia and Hungary, which have comparable spending levels. BiH's spending is only slightly below that of Slovenia's at 4.9 percent and the EU and OECD averages of 5.1 and 5.2 percent, respectively. Therefore, the evidence suggests that the overall level of education spending in BiH may be sufficient for the sector. However, despite roughly equivalent levels of spending on education, learning outcomes are worse for BiH (461) than for peers, like Croatia (505), Hungary (516), and the EU (515).⁴⁶

Figure 17: Total government expenditure on education (% GDP), 2016 or latest available

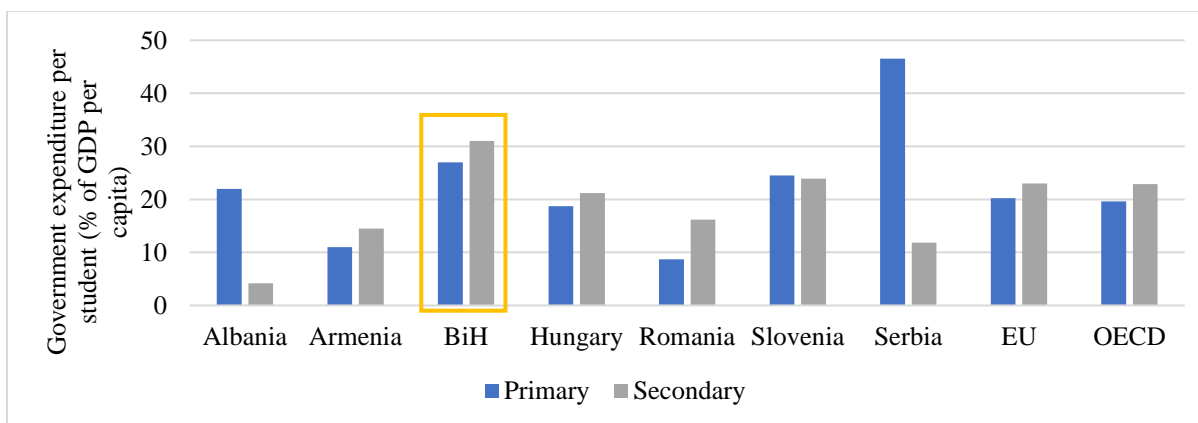


Source: World Bank staff calculations using data from UNESCO, UIS 2019 for comparators; BiH is calculated based on data from ministries of finance of BiH, FBiH, and RS, 2019

35. **Per student spending is notably higher than comparator countries, which raises concerns about the efficiency of resource use in the system.** A reliable indicator of expenditure size of education is per student spending as a proportion of the GDP per capita. Compared to the other comparators, BiH spends more per student in both primary and secondary education, with the exception of Serbia in primary education (Figure 18). This is driven at least in part by the widening gap between the number of students—which is declining—and the size of the school system. This raises the question of efficiency when compared to the EU and peers with better education outcomes.

Figure 18: Government expenditure per student as a percent of GDP per Capita, 2016 or latest available

⁴⁶ Scores are based on World Bank's Harmonized Learning Outcomes database.

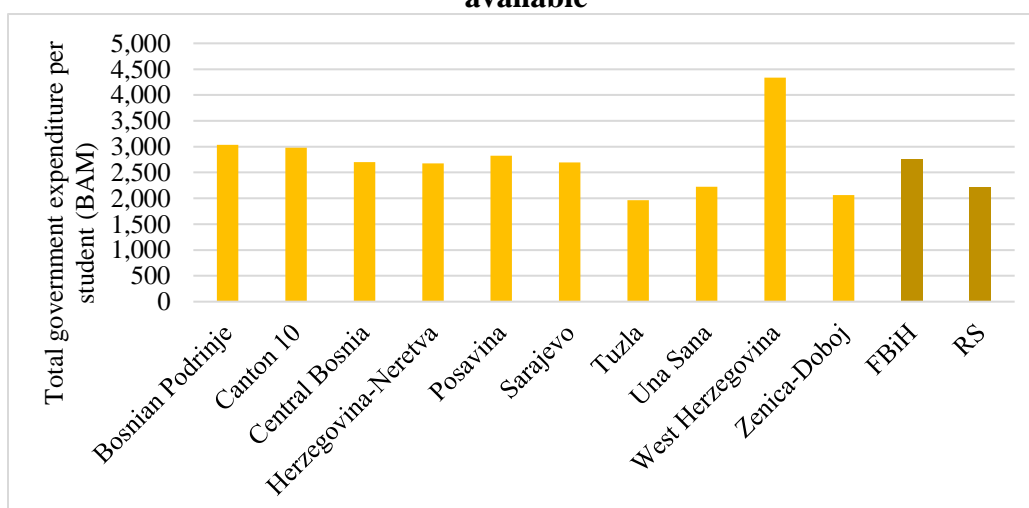


Source: World Bank staff calculations using data from ministries of finance of BiH, FBiH, and RS, 2018; World Bank Databank, 2018

Note: Serbia, EU, and OECD based on 2015 data, which is the latest available

36. **Within the country, per student spending in primary education varies considerably, suggesting high inequities and inefficiencies in the distribution of resources.** Per student spending is about 24 percent higher in FBiH than in RS, at 2,750 BAM and 2,213 BAM, respectively (Figure 19). This likely reflects the decentralized structure of education in FBiH, as well as the existence of a range of salary laws which regulate the salaries of education professionals. There are also notable variations across the cantons with per student spending ranging from 2,000 BAM in Tuzla to over 4,300 BAM in West Herzegovina. To some extent, this reflects differences in the cost of service delivery in rural versus densely populated cantons. Still, these significant variations are likely to result in inequitable access to quality education for children across cantons, and suggests that financial resources are not distributed efficiently.

Figure 19: Total government expenditure per student in primary education, 2016 or latest available

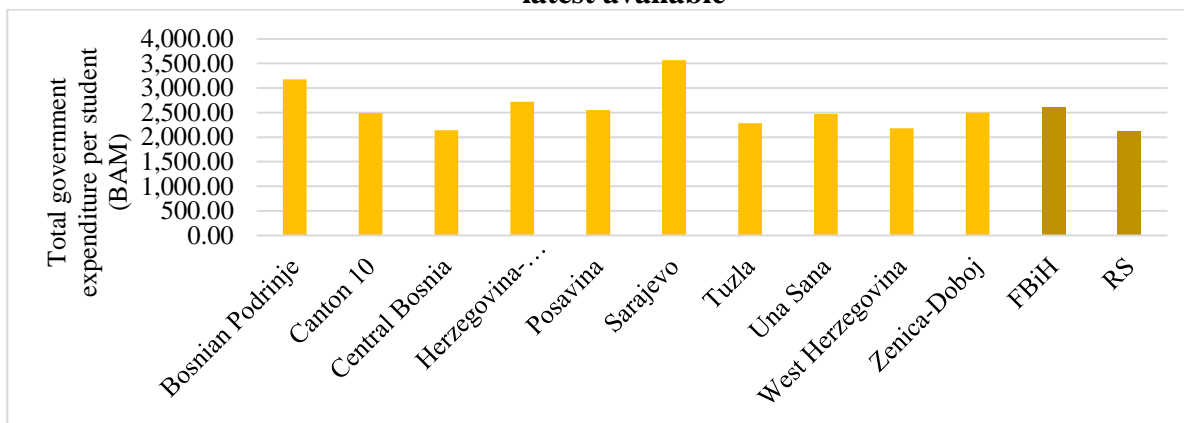


Source: World Bank staff calculations using data from ministries of finance of FBiH, RS, and cantons 2018

37. **Per student spending in secondary education is also inconsistent in FBiH and RS.** Like in primary education, FBiH spends about 23 percent more than RS in secondary education on a per-student basis, at 2,608 BAM and 2,122 BAM respectively (Figure 20). Within FBiH, Sarajevo

and Bosnian Podrinje’s per student expenditures of 3,568.32 and 3,177.10 BAM, respectively, are significantly higher than the average per student spending for FBiH. Meanwhile, per student spending levels in Central Bosnia and West Herzegovina of 2,143.06 and 2,177.90 are notably below the FBiH average.

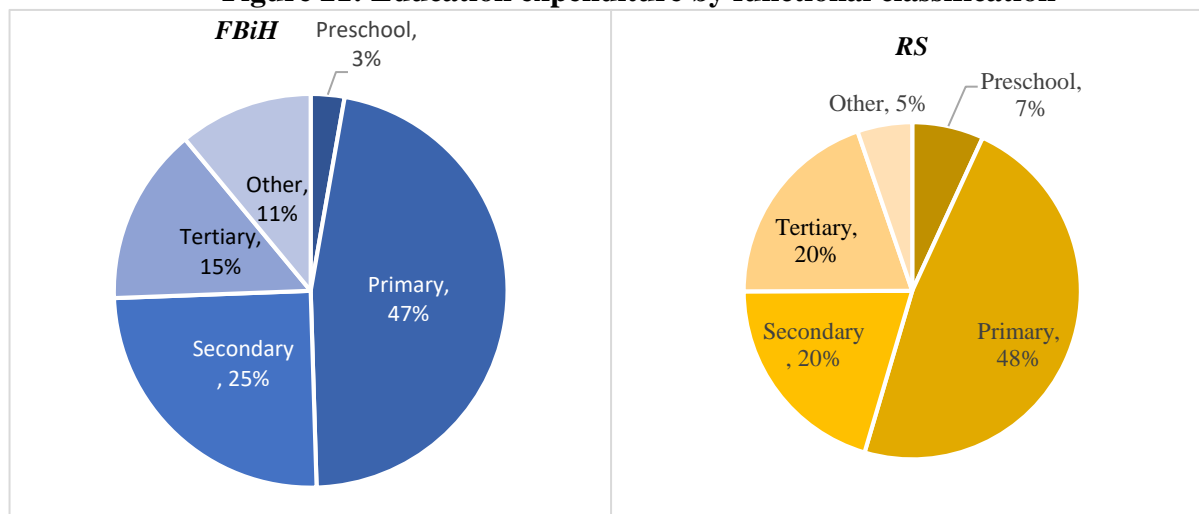
Figure 20: Total government expenditure per student in secondary education, 2016 or latest available



Source: World Bank staff calculations using data from ministries of finance of BiH, FBiH, and RS, 2018

38. **Primary education takes the lion’s share of education expenditure in the two entities, with relatively little going to preschool education.** In FBiH and RS, resources allocated to primary education account for 47 and 48 percent, respectively, of total education expenditure (Figure 21). Secondary and tertiary receive comparable shares in RS, while secondary receives 10 percentage points more than tertiary in FBiH. Preschool education receives only 3 and 7 percent in FBiH and RS, accordingly. Given the significantly low access to preschool and relatively high access in primary education in both entities paired with the declining student-age population, there may be opportunity to redistribute resources between these two levels, reemploying fiscal savings in primary education to improve access in preschool.

Figure 21: Education expenditure by functional classification



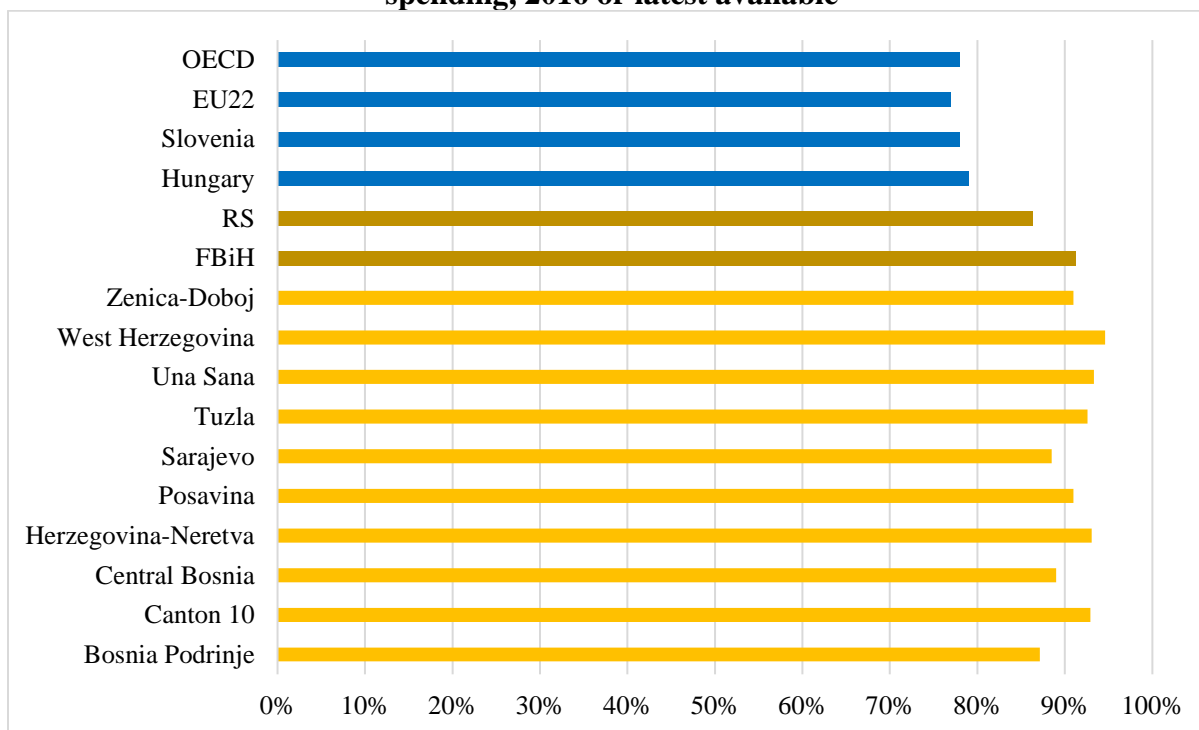
Source: World Bank staff calculations using data from ministries of finance of BiH, FBiH, and RS, 2018

Note: Other category includes MOE, undefined, and other expenditure

Personnel Spending

39. **BiH spends the vast majority of its education resources on personnel, a higher share than in the EU and OECD, which leaves little room for other investments in quality of service delivery.** Average allocations to staff compensation in F BiH for both primary and secondary education are about 91 percent and roughly consistent across the cantons (Figure 22). RS allocates most of its education expenditure in primary and secondary education to staff compensation as well, but slightly less than F BiH at about 87 percent for both levels. The share of spending allocated to personnel in BiH is significantly higher than the average share allocated to staff in pre-university education in the EU and OECD of 77 and 78 percent, respectively. High spending on staffing means there are scarce resources for investing in the learning environment, such as improving infrastructure, technology and equipment, learning materials, and other inputs conducive to learning.

Figure 22: Personnel costs in pre-university education as percentage of total education spending, 2016 or latest available



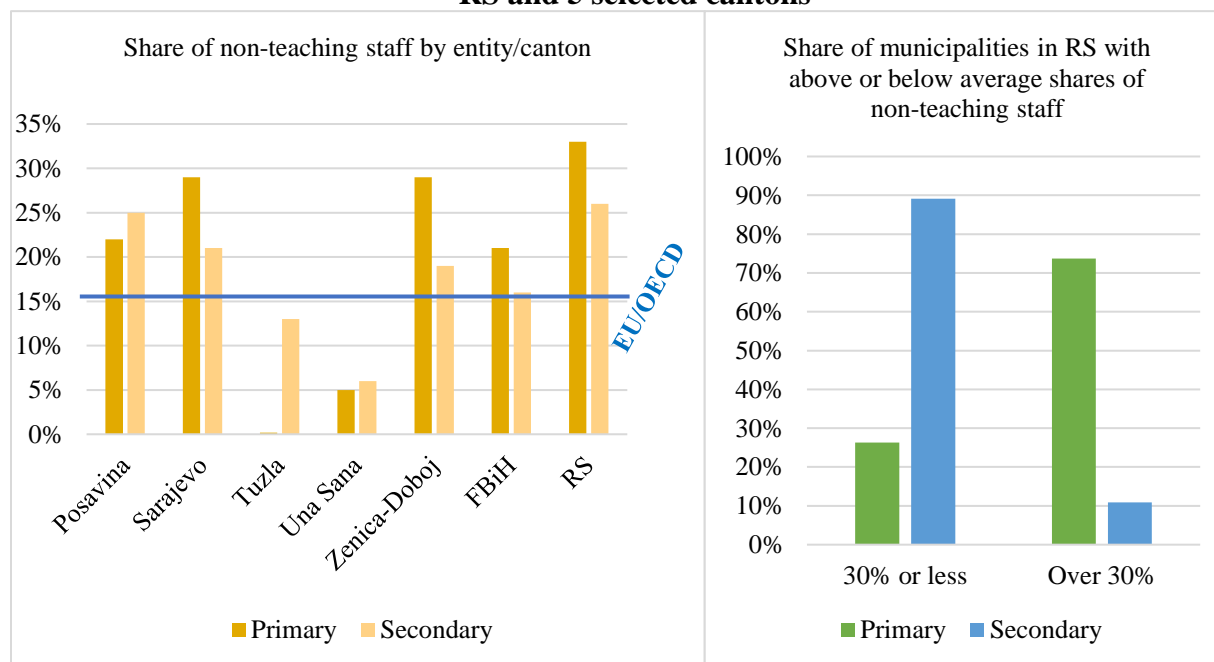
Source: World Bank staff calculations using data from ministries of finance of BiH, F BiH, and RS, 2018; OECD, Education at a Glance, 2018

40. **Non-teaching staff make up a significant share of school staff, especially in primary schools and in RS.** Non-teaching staff include auxiliary workers such as secretaries as well as manual workers such as security guards, cooks, and cleaners. In RS, non-teaching staff comprise 33 percent of all school staff in primary schools and 26 percent of all school staff in secondary schools (Figure 23). In five selected F BiH cantons for which data are available, non-teaching staff make up on average 21 percent of school staff in primary schools and 16 percent in secondary schools. These figures are roughly equivalent to the share of personnel spending for teaching vs. non-teaching staff. Although international benchmarks are difficult to establish here, since

different categories of staff are included as “non-teaching staff,” data from the OECD suggest that the share of spending on non-teaching staff represents more like 14-15 percent in the EU22 and the OECD.⁴⁷ Although non-teaching staff are often critical to fulfilling school functions and keeping the school operational, a high share of non-teaching staff relative to teaching staff indicates that a large share of resources is not being used towards a school’s core purpose: teaching and learning.

41. **Payroll data at the municipality and school levels for RS and five cantons of FBiH show significant variation in how many non-teaching staff are employed: in three-quarters of the municipalities within RS, the percentage of non-teaching staff is over 30 percent.** In some extreme cases, municipalities and schools in RS have up to 50 percent of staff as non-teaching staff. There are also variations in the percentage of non-teaching staff with Sarajevo and Zenica-Doboj having above average shares of non-teaching staff (over 30 percent of staff). These findings indicate that a significant share of school personnel—particularly in some municipalities and schools—are not directly contributing to student learning.

Figure 23: Share of non-teaching and teaching staff in primary and secondary schools for RS and 5 selected cantons



Source: World Bank staff calculations using data from ministries of finance of FBiH, RS, and cantons, 2018

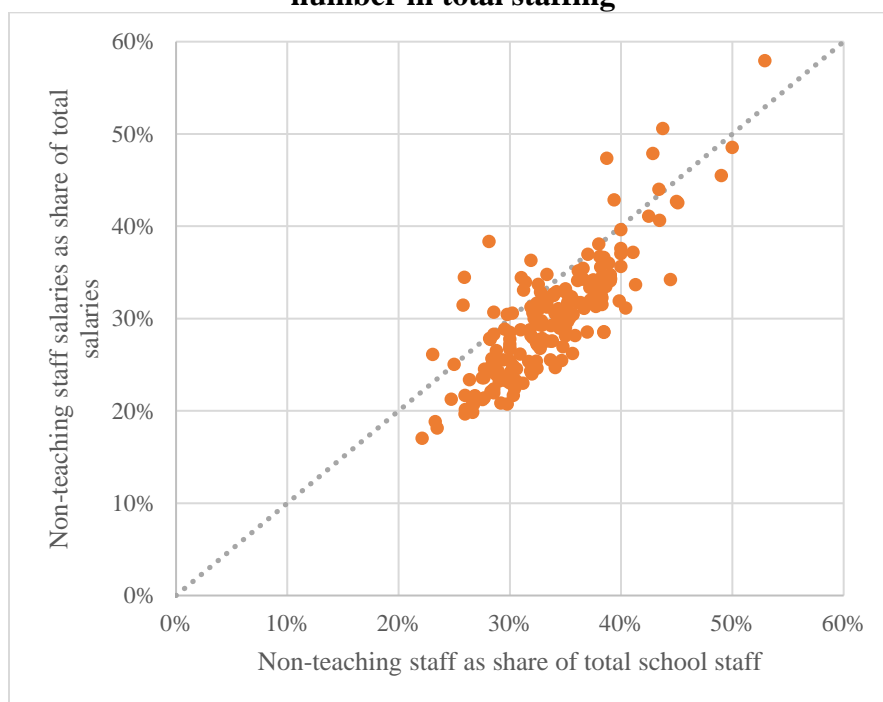
Note: FBiH in this analysis represents the average of the 5 selected cantons; 30 percent threshold for municipality level analysis in RS is based on the entity level average of approx. 30 percent for primary and secondary education (graph on left)

42. **In most schools in RS and FBiH, the numbers of non-teaching staff outpace their share of total salaries, although there are exceptions.** For the average primary school in RS, non-teaching staff represent about 34 percent of total staff, while their collective share of total

⁴⁷ OECD (2018)

salaries at the school level represents 30 percent. This is a natural reflection of the fact that non-teaching staff earn lower salaries than teachers, as is expected given the different types of work and qualifications requirements. However, there are numerous schools in RS and in 5 cantons of FBiH where the opposite is true (Figure 24) – non-teaching staff receive a greater share of total salaries than they represent in terms of staff members of the school. Furthermore, in about one-third of schools in RS, non-teaching staff salaries exceed the average of 30 percent of total salaries, meaning that one-third of schools use a disproportionate amount of resources on non-teaching staff. This could be driven by differences in wage regulations and public employment controls. However, without more information about the specific needs and circumstances of those schools, it is difficult to say whether this disproportionate use of non-teaching staff is warranted.

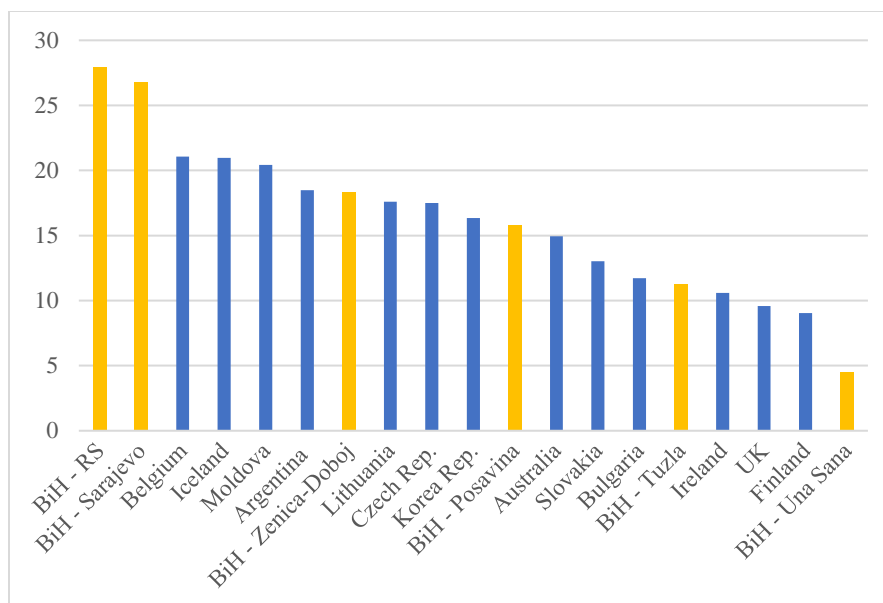
Figure 24: RS: Non-teaching staff salaries represent smaller share of total than their number in total staffing



Source: World Bank staff calculations using data from RS Ministry of Finance

43. **Compared to other countries in Europe and beyond, BiH does appear to spend a relatively higher share on non-teaching staff in primary schools, particularly in RS and Sarajevo canton.** Though benchmarking data are relatively scarce, the available data do indicate that BiH—particularly RS and Sarajevo canton—spend a higher share of salaries in primary schools on non-teaching staff (Figure 25). This means that in spite of the relatively lower salaries for non-teaching staff, there are sufficient numbers of non-teaching staff working in primary schools to cause their share of total spending to outpace that of other countries. This suggests that many schools likely employ too many non-teaching staff which raises questions about hiring practices and employment controls for non-teaching staff as well as the actual workloads of these workers vis-à-vis the schools’ needs.

Figure 25: Non-teaching staff salaries as a share of total spending in primary schools, 2017 or latest year available (%)



Source: World Bank staff calculations using payroll data from RS and FBiH ministries of finance and UIS data for comparator countries

Note: Comparator country data is from 2013-2016 depending on availability

44. **It is difficult to say whether the current mix of teaching and non-teaching staff at the school level is optimal without more information on the workloads of non-teaching staff.** International evidence on non-teaching staff does not point to any pre-determined ‘optimal’ level of non-teaching staff. However, BiH is an outlier in terms of both personnel spending in the education sector, and the the share of non-teaching staff. Furthermore, the economics of education literature stresses the importance of ensuring that education spending contributes to activities that foster learning, either directly (through instruction) or indirectly (through the school environment). More information is needed on schools’ needs (including their enrollment size vis-à-vis staffing) as well as staffing, workloads, and job functions in order to more accurately assess how and under what conditions the relatively high share of non-teaching staff in schools in BiH contribute to student learning.

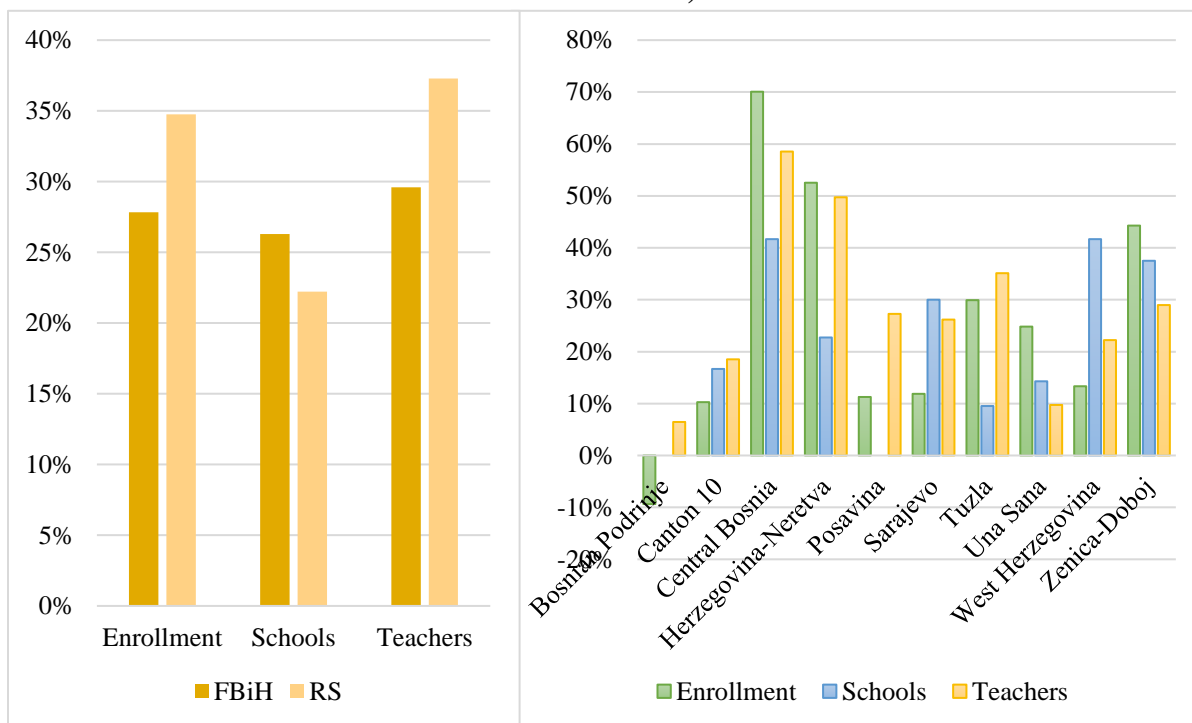
Evolution of School Network

45. **The school-age population is expected to continue declining in line with the overall demographic trends, which means that the school system has to adjust accordingly.** According to the United Nations’ World Population projections, by 2033 BiH’s total population is expected to decline from 3.5 million in 2018 to 3.3 million (or 4 percent), reflecting the decelerating birth rate in the country. As a result, the youth population for ages 0-24-years is also forecasted to decrease by 15 percent. Such demographic changes in the school-age population will inevitably continue to require prudent resource management in the education sector, but they also represent an opportunity to generate fiscal savings that can be reinvested to improve quality of service delivery.

46. **Preschool enrollment has increased over the last five years, but the number of preschool institutions has not kept pace with the growing demand.** Between 2014 and 2018, preschool enrollment in FBiH and RS increased by 28 and 35 percent, respectively (Figure 26),

although this reflects the very low starting point for preschool enrollment in BiH. This change does reflect increasing demand for ECE in the country, but as previously mentioned, enrollment has been and remains low compared to other countries. Over the same period, the number of teachers has also increased proportionately with 30 percent more teachers in FBiH and 37 percent in RS. However, the network of preschools has only expanded by 26 and 22 percent in FBiH and RS, respectively. At the cantonal level, there appear to be discrepancies in capacity and in some cases, like Posavina, no increase in the number of schools despite increased enrollment. The findings provide further evidence of relatively low capacity for ECE in BiH.

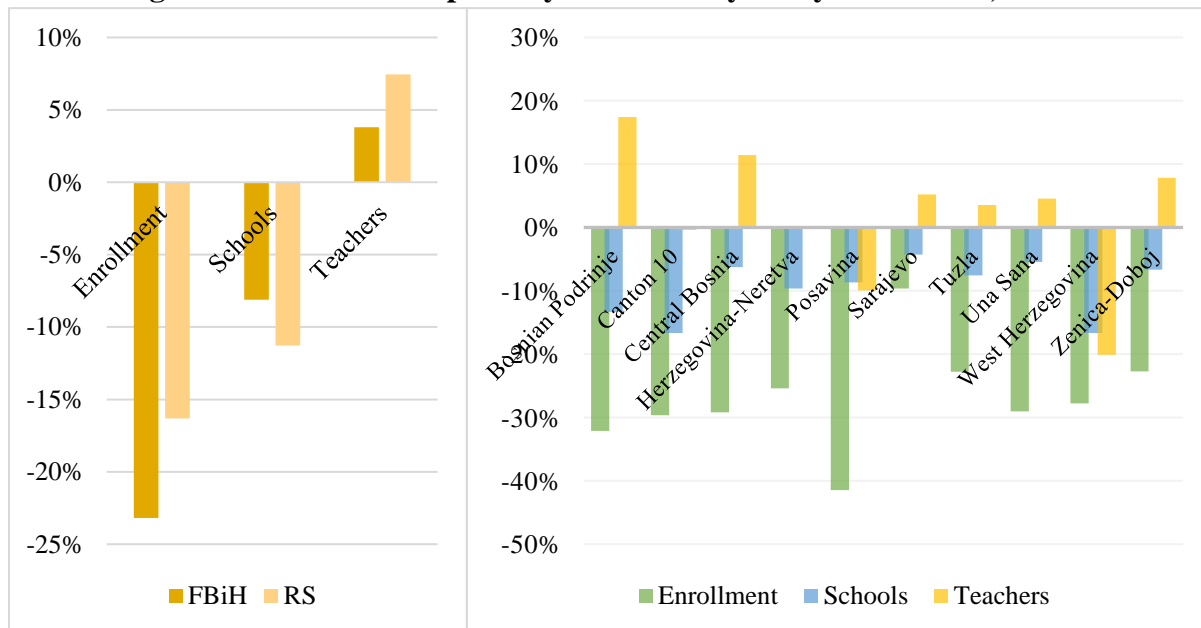
Figure 26: Evolution of preschool education by entity and canton over last five years (from 2014 to 2018)



Source: World Bank staff calculations using data from statistical offices of BiH, 2018

47. **In primary education, the number of teachers has increased despite decreasing numbers of students and schools.** Between 2009 and 2018, enrollment in primary schools decreased in FBiH and RS by 23 and 16 percent, respectively (Figure 27). The percentage of schools also dropped by 8 and 11 percent in FBiH and RS, respectively. However, full-time equivalent teachers (FTEs), increased by 4 percent in FBiH and 7 percent in RS. Deeper analysis of the FBiH cantons reveals that the bulk of the increases in FTEs came from 6 out of 10 cantons, most notably Bosnian Podrinje (17 percent increase over 2009-2018 period) and Central Bosnia (11 percent). Therefore, the analysis suggest potential inefficiencies in the way that primary education resources are distributed across FBiH in particular.

Figure 27: Evolution of primary education by entity and canton, 2009-2018

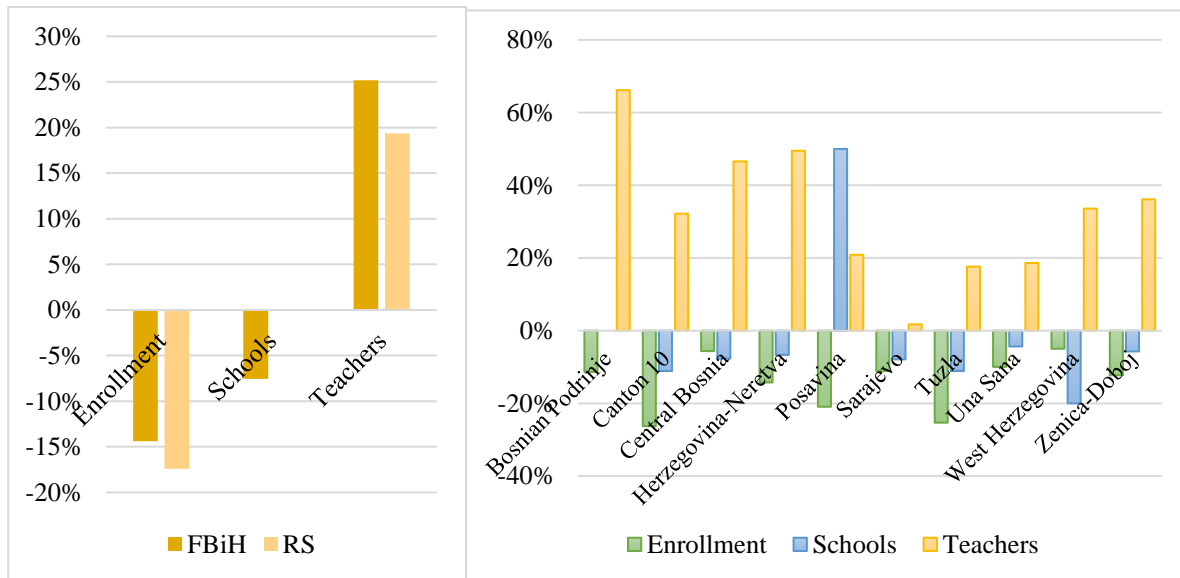


Source: World Bank staff calculations using data from statistical offices of BiH, 2018

Note: Teachers is reported as full-time equivalent (FTE) teachers, which is calculated as the number of full-time teachers plus half of the number of part-time teachers

48. **In secondary schools, the situation is similar: the number of students declined while the number of teachers increased.** Between 2009 and 2018, enrollment in secondary school decreased in both FBiH and RS by 14 and 17 percent, respectively (Figure 28). These decreases are slightly less than in primary schools, but is expected given the demographic trend. At the same time, the number of schools have not decreased in RS and the percentage of full-time equivalent teachers increased in secondary schools by 25 percent in FBiH and 19 percent in RS, again raising efficiency concerns. Furthermore, most cantons in FBiH increased their share of FTE teachers in secondary education over this time period, despite reductions in the number of students and schools.

Figure 28: Evolution of secondary school education by entity and canton, 2009-2018

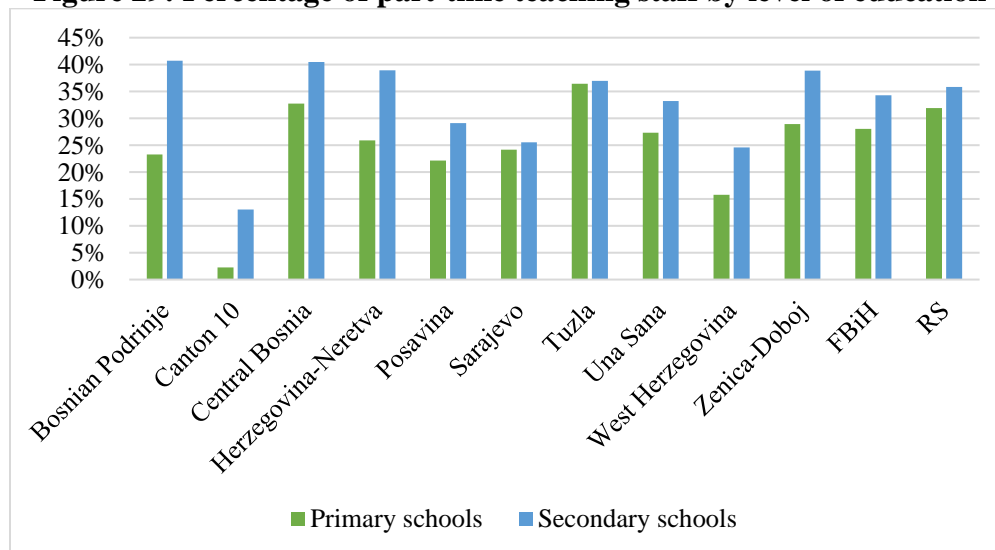


Source: World Bank staff calculations using data from statistical offices of BiH, 2018

Note: Teachers is reported as full-time equivalent (FTE) teachers, which is calculated as the number of full-time teachers plus half of the number of part-time teachers

49. **About one-third of teachers work on a part-time basis.** In FBiH, about 28 percent of primary school teachers are part-time, compared to 21 percent in 2009. RS has a higher share of part-time teachers in primary schools, at 32 percent, but this figure has declined from 40 percent in 2009. In secondary schools, the figures have remained relatively constant over time: about 32 percent of secondary school teachers are part-time in FBiH, compared to 36 percent in RS (Figure 29). The share of part-time teachers across cantons is also high with the exception of Canton 10. Such concentrations of part-time teachers and the variations across the country raise questions about the efficiency of teachers' workloads, the ease of hiring part-time versus full-time staff, and the ultimate effect on student learning. The need to employ teachers on a part-time basis could be driven by the school network, as teachers cannot easily work full-time across multiple schools.

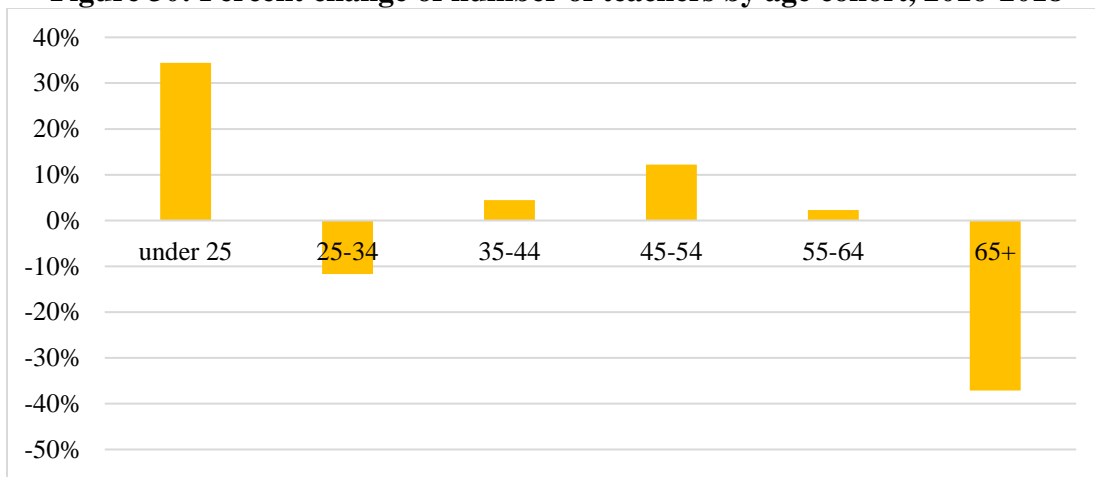
Figure 29: Percentage of part-time teaching staff by level of education



Source: World Bank staff calculations using data from ministries of finance of FBiH, 2018

50. **Most experienced senior teachers are concentrated in a few larger cantons.** In recent years, the percentage of teachers under the age of 25 increased by 34 percent, while the percentage of teachers over retirement age (65+) has decreased by 37 percent (Figure 30). This is a natural trend reflecting inflows and outflows from the teaching profession, but it also reflects an evolution in the appeal of the teaching profession as an option for young secondary school graduates. Even so, a closer look at the distribution of cohorts by canton indicates that 60 percent of teachers who are at or nearing retirement age (55+) are concentrated in just 3 cantons—Tuzla, Sarajevo, and Zenica-Doboj. Although these are more populous cantons, it also means that future transitions in the teacher workforce in BiH will affect these cantons disproportionately, potentially requiring more robust efforts at workforce management and planning going forward.

Figure 30: Percent change of number of teachers by age cohort, 2016-2018



Source: World Bank staff calculations using data from statistical offices of BiH, 2018

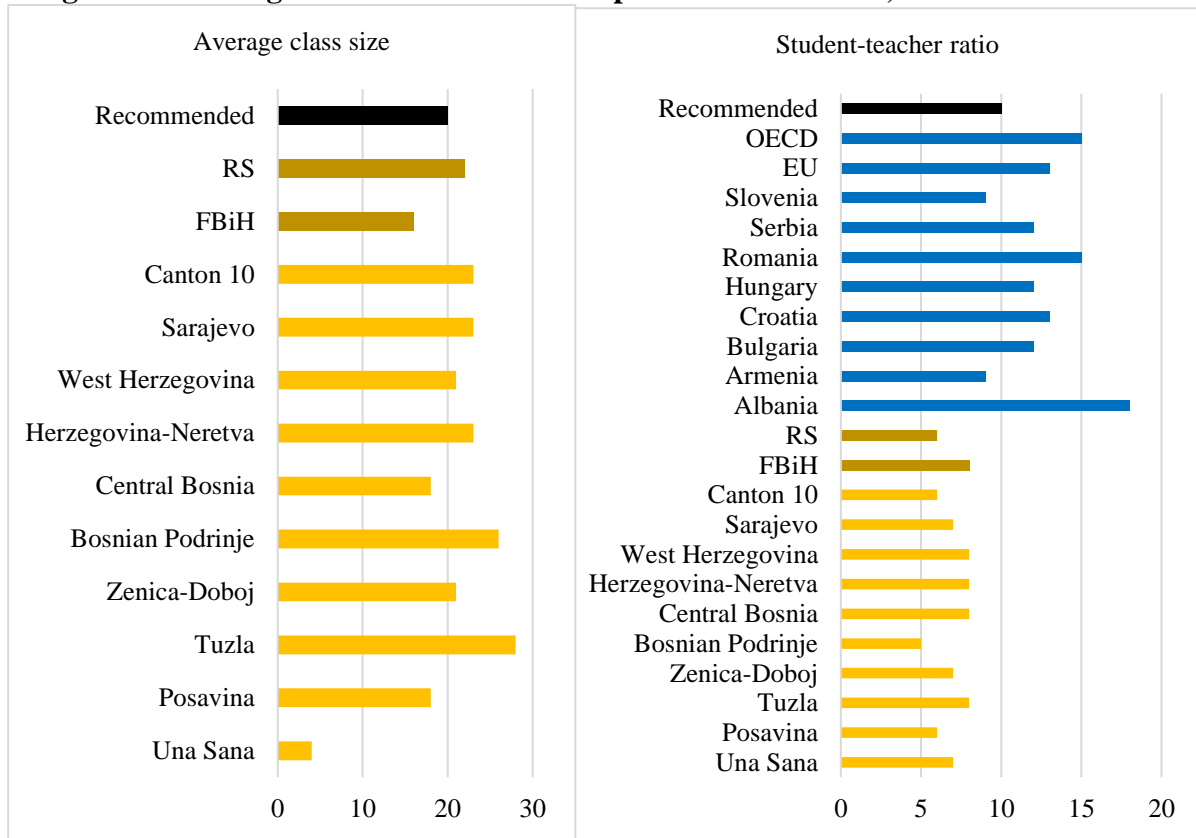
Organization of Instruction: Student-Teacher Ratios (STRs) and Class Size

51. **Evidence suggests that capacity in preschools is limited, leading to relatively large classes despite low ratios of teachers to enrolled children.** According to a recent study that analyzed nearly six decades' worth of ECE research, preschool class sizes at or below 20 and a ratio of one teacher for every 10 children are largely adequate for most children's learning and development.⁴⁸ However, there was no clear advantage to slight reductions in these numbers with the exception of programs designed to serve higher risk populations.⁴⁹ Preschool student-teacher ratios (STRs) across all FBiH and RS appear to fall short of the optimal levels (1:10) recommended by the research and were also considerably below peers, including the EU average of 13 (Figure 31). However, class sizes in RS and many of the cantons are above the norm mentioned in the research, which could be an indication of overcrowding.

⁴⁸ Bowne et al. (2017).

⁴⁹ Bowne et al. (2017).

Figure 31: Average STR and class size for preschool education, 2018 or latest available



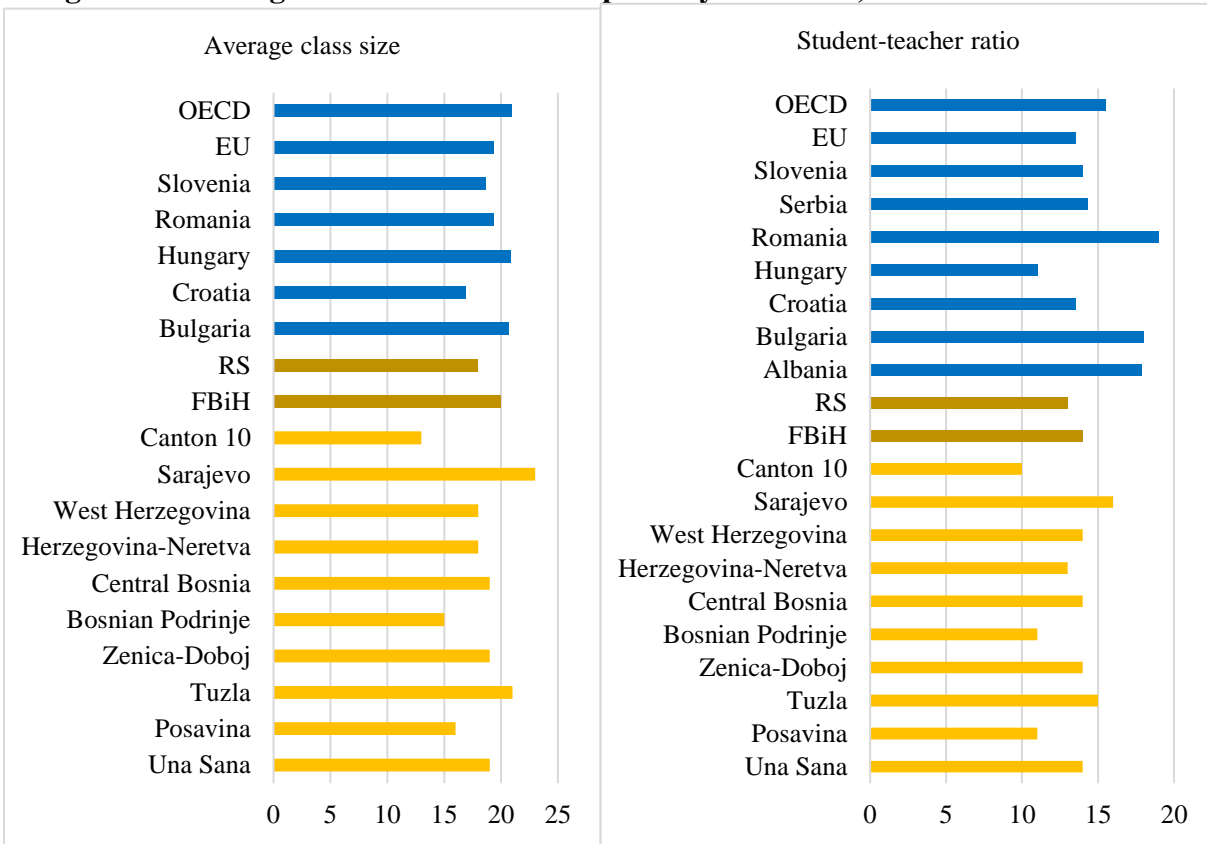
Source: World Bank staff calculations using statistical offices of BiH, 2018; Eurostat and OECD, 2019

52. **Primary schools in BiH have relatively small classes and low student-teacher ratios by international as well as entity-level standards.** Average class sizes and student-teacher ratios (STRs) in FBiH and RS fall slightly below international peers, particularly in RS (Figure 32). It is important to note, the average class size in RS of 18 students is also one-third below established norms in RS, which specify an optimal class size of 25 students in primary education.⁵⁰ In FBiH, standards vary across the cantons and depend on the type of class (e.g. single vs. multigrade classes). For example, an analysis of the legal and normative framework for schools in four cantons⁵¹ and RS indicates that the minimum class sizes vary from 16 to 20, but with lower permissible norms of 6-8 students per class in the case of multigrade classes. Considerable variations across the cantons for both class size and STR confirm that norms differ widely or may not be enforced, contributing to inefficient organization of instruction.

⁵⁰ RS Supreme Audit Institution (2018).

⁵¹ Sarajevo, Tuzla, Herzegovina-Neretva, and Zenica-Doboj cantons.

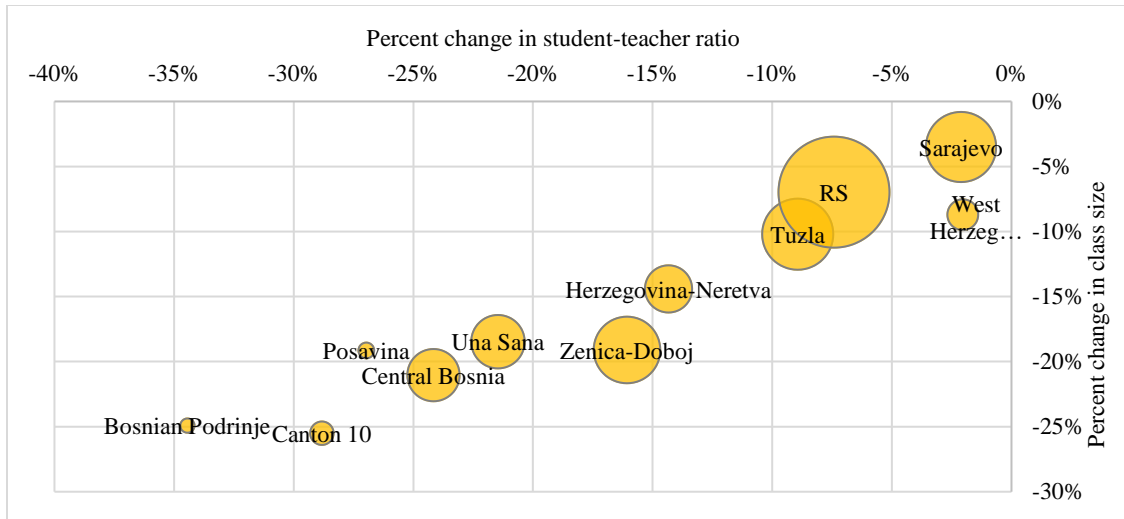
Figure 32: Average class size and STR in primary education, 2018 or latest available



Source: World Bank staff calculations using data from statistical offices of BiH, 2018; UNESCO, UIS, 2019

53. **The organization of instruction in primary schools has grown more inefficient over time in line with the declining population.** Between 2009 and 2018, class sizes and STRs decreased across FBiH and RS, indicating that many school systems in BiH have not kept pace with the demographic decline (Figure 33). Furthermore, the analysis shows notable differences among cantons. For example, STRs for Bosnian Podrinje, Canton 10, and Posavina decreased more significantly than other cantons and today they have the lowest STRs in FBiH. On the other hand, Sarajavo and to a lesser extent RS have seen more gradual change given their larger populations and greater population density.

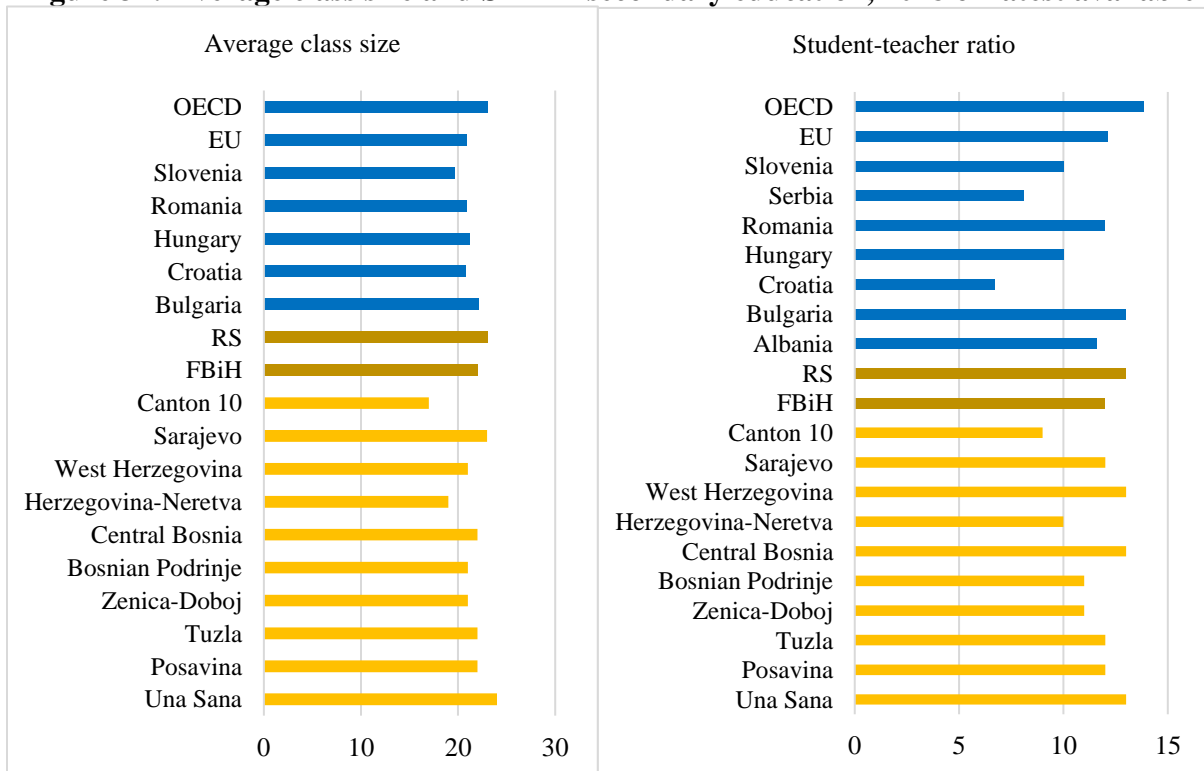
Figure 33: Changes in class size and STR in primary education, 2009-2018



Source: World Bank staff calculations using data from statistical offices of BiH, 2018
 Note: Bubble size represents student enrollment per canton/entity

54. **Secondary schools, however, appear to be more in line with the EU and OECD averages in terms of class size and STR** (Figure 34). For instance, average class sizes in secondary education for FBiH and RS were comparable to the EU and OECD average secondary education class sizes of about 21 and 23, respectively and average STRs of approximately 12 and 14 for the EU and OECD, accordingly. Secondary school class sizes are mostly consistent throughout BiH, though Canton 10 and Herzegovina-Neretva have below-average class sizes.

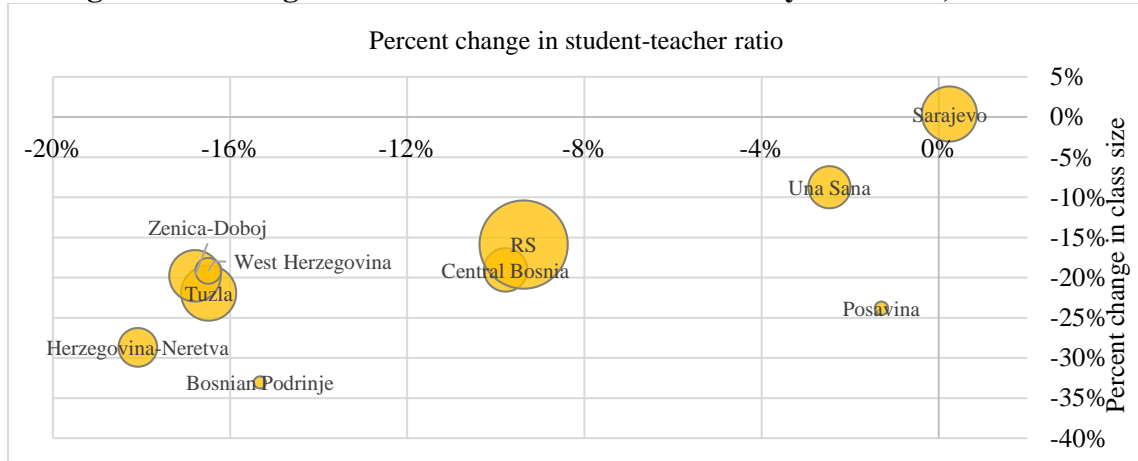
Figure 34: Average class size and STR in secondary education, 2018 or latest available



Source: World Bank staff calculations using data from statistical offices of BiH, 2018; World Bank Databank, 2018

55. **However, as with primary schools, secondary schools have grown more inefficient over time.** Between 2009 and 2018, class sizes and STRs have decreased across FBiH and RS, indicating that many secondary schools have not fully adjusted to the declining student population (Figure 35). The analysis shows inefficiencies in RS and across many cantons, most notably Bosnian Podrinje and Herzegovina-Neretva. Meanwhile, Sarajevo has seen virtually no change in class sizes or student-teacher ratios over time which reflects the urbanization and population concentration in this canton.

Figure 35: Changes in class size and STR in secondary education, 2009-2018



Source: World Bank staff calculations using data from statistical offices of BiH, 2018
 Note: Bubble size represents student enrollment per canton/entity

56. **When drilling down to the municipal level, it is clear that a large share of municipalities in BiH are highly inefficient in terms of education service delivery.** A municipal level analysis for FBiH reveals that in 5 of 10 cantons, over 50 percent of the constituent municipalities operate below the EU average class size of 19 and average STR of 14 in primary education (Figure 36). Posavina and Bosnian Podrinje had the highest levels of inefficiency at the municipal level, with average class sizes of 16 and 15 and average STRs of 11, respectively. Meanwhile, 6 out of 10 cantons also had STRs below the EU average in secondary education (Figure 37). The highest share of inefficient municipalities in terms of low STRs in secondary education were found in 3 cantons: Bosnian Podrinje, Canton 10, and Zenica-Doboj.

Figure 36: % of municipalities below EU average for class size and STR in primary education

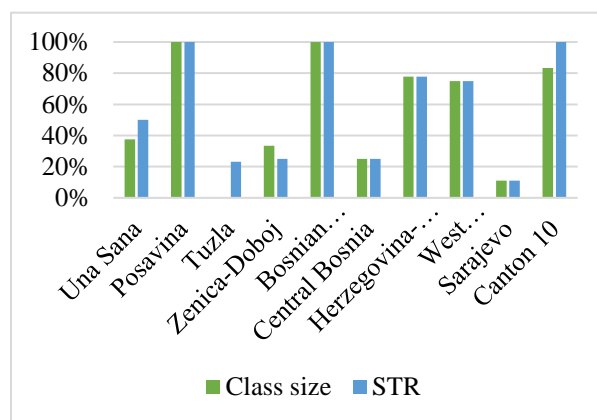
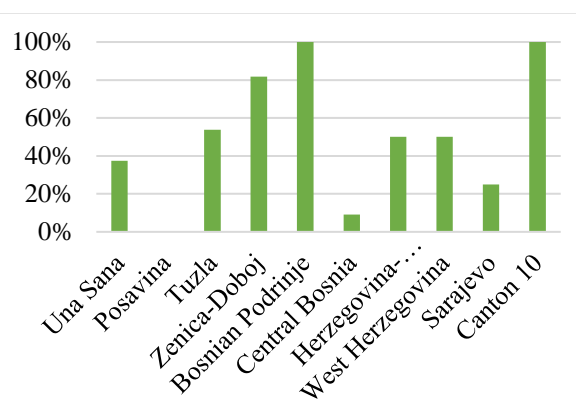


Figure 37: % of municipalities below EU average for STR in secondary education



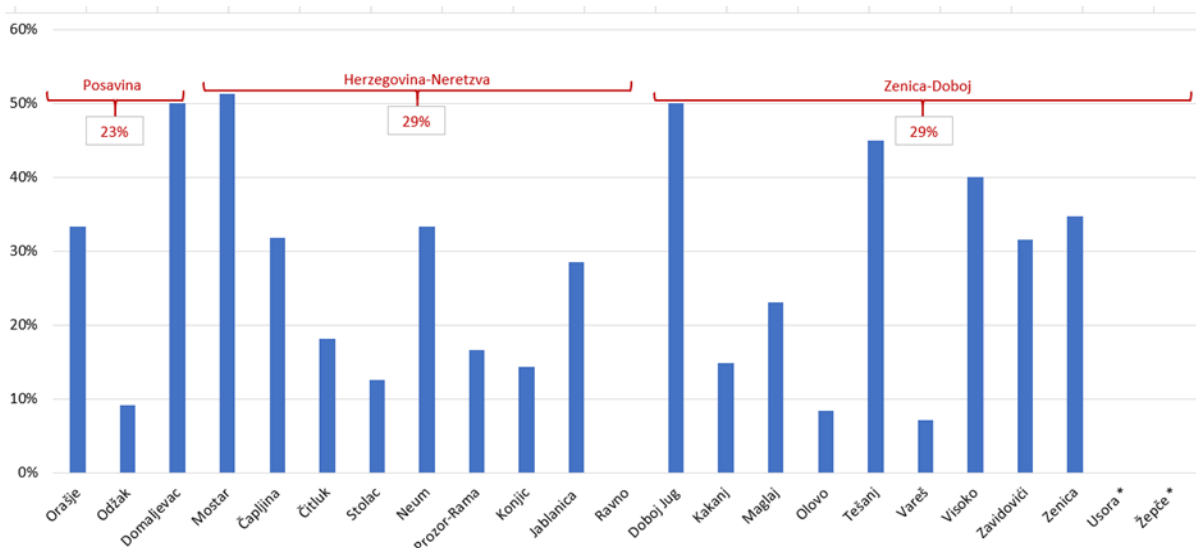
Source: World Bank staff calculations using data from statistical offices of BiH, 2018

Note: Variation is based on range between municipality with highest class size and municipality with lowest class size within each canton

57. **Although the school network has become more inefficient over time, measured by class size and STRs), there is still evidence of localized network capacity constraints in some urban areas.** Among three selected cantons for which data was available—Posavina, Herzegovina-Neretva, and Zenica-Doboj—there were 23-29 percent of schools operating on two or more shifts per day (Figure 38). However, urban municipalities such as Zenica and Mostar have 35 percent and 50 percent (respectively) of their schools operating in two shifts per day. Dual-shift schooling helps to expand the number of school places and broaden access, while alleviating pressure on facilities. However, it also creates significant problems for teaching and learning by condensing instructional time, making more intensive use of teachers who teach in multiple shifts, and limiting students’ sense of belonging and ownership to their school. Many argue that the problems outweigh the benefits.⁵² This data on dual-shift schooling is only representative for 3 cantons, so it should be noted that this situation may not necessarily be representative of the challenge at the state level.

Figure 38: Percentage of schools operating in dual shifts per day in 3 selected cantons

⁵² Bray (2008).



Source: World Bank staff calculations using data from statistical offices of BiH, 2018

58. **Although the data suggest that most of these circumstances are due to capacity constraints, dual-shift schooling in some selected cases is the result of ethnic segregation through the practice known as “two schools under one roof.”**⁵³ This practice was established after the war as a temporary measure to address the offensive post-war ethno-centric education system and encourage the return of refugees and displaced persons. However, this measure has become permanent in some cases. For example, in Prozor-Rama, a municipality in Herzegovina-Neretva canton, there are two primary schools which deliver the primary school curriculum separately in the Bosnian and Croatian languages by separating teaching into two shifts. The pupils of Primary School (PS) ‘Marko Marulić’ attend classes in the morning and the pupils of PS ‘Alija Isaković’ attend classes in the afternoon. However, even in this case, the large number of pupils requires that PS ‘Marko Marulić’ organize some classes in the afternoon as well.⁵⁴ Although not the subject of this analysis, ethnic segregation in schools and the persistence of the ‘two schools under one roof’ phenomenon further contributes to the inefficient use of resources in the education system and detracts from opportunities to invest in teacher training or extracurricular activities.⁵⁵

59. **Combined (multi-grade) classes are also common as a mechanism to ensure access for all while economizing on resources, particularly in rural primary schools and schools operating as branches of a central hub school.** The percentage of combined primary-level classes in FBiH is notable, ranging from only about 3 percent in Sarajevo canton to nearly 30 percent in Herzegovina-Neretva and West Herzegovina cantons. No data are available for RS. The use of combined classes reflects the necessity to offer education for all students even in remote rural areas, where there may be insufficient numbers to form a typical size class. This explains why minimum class size norms for combined classes are lower than for non-combined classes.

⁵³ For example, OSCE (2018) found that there are 56 schools in 28 locations, including central and branch schools, affected by the phenomenon of ‘two schools under one roof,’ mostly in primary schools. However, not all instances result in dual-shift schooling.

⁵⁴ OSCE (2018)

⁵⁵ Furthermore, the practice of ‘two schools under one roof’ is a breach of international conventions as well as domestic legislation.

However, it is unclear how schools that use multigrade classes more intensively manage the instructional program. Research suggests that multigrade teachers need special training and support, since multigrade classrooms are more demanding for teachers given the greater diversity of students' ages and abilities. Traditional instruction generally proves to be less effective in multigrade settings.⁵⁶ More information on teachers' practices and opportunity to learn in schools that intensively use combined classes would be needed to determine the costs and benefits of this approach.

VI. TEACHER DEVELOPMENT AND MANAGEMENT

60. **Teachers are the most important school-level factor driving student learning. Given that teachers' salaries represent over 90 percent of financial resources in education in BiH, it is important to better understand how teacher policies and practices influence resource use and service delivery.** The quality of an education system cannot exceed the quality of its teachers. Top-performing education systems consistently attract more capable people into the teaching profession and equip them with the deep content knowledge, high-quality pedagogical practices, creativity and empathy to improve student learning outcomes. Research shows that successful teachers also can make a major difference to a student's learning trajectory. Going from a low-performing teacher to a high-performing teacher can have a large effect on learning equivalent to multiple years of schooling.⁵⁷

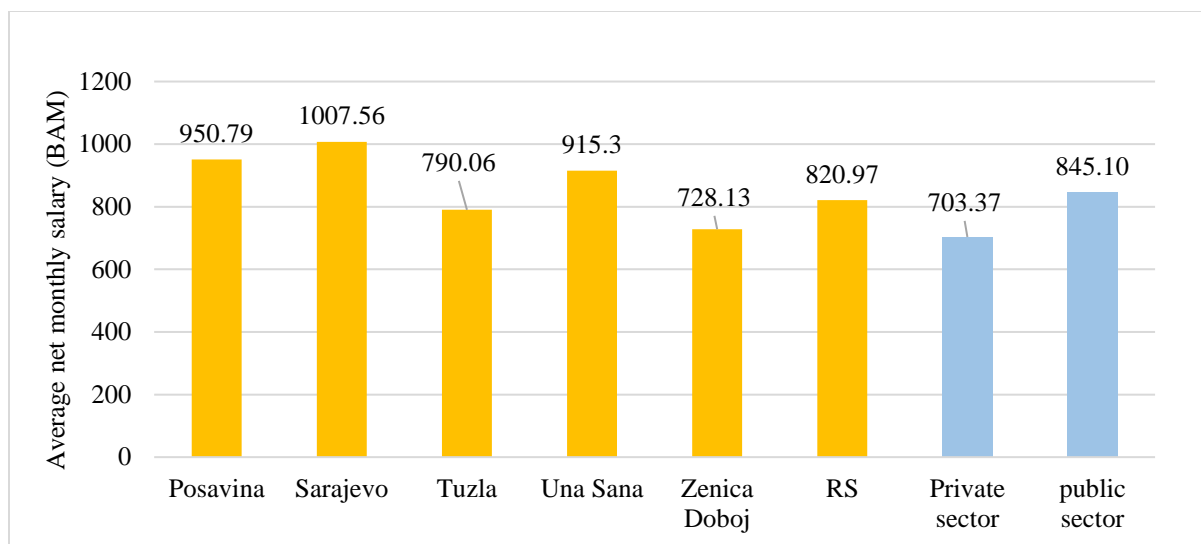
Attractiveness and Status of Teaching Profession

61. **Teaching is a relatively well-paid profession in BiH, with teachers' salaries on par with the public sector and significantly above private sector salaries.** The average net monthly salary for teachers in five observed cantons and RS was approximately 868.80 BAM, which was nearly 25 percent above the average of the private sector and on par with the average of the public sector of 845.10 BAM (Figure 39). Moreover, the average teacher's salary for the 5 observed cantons in FBiH was about 7 percent higher than the average teacher salary in RS. There were also significant variations across the five cantons, with salaries ranging from 728.13 BAM in Zenica-Doboj to 1,007.56 in Sarajevo—that is a nearly 40 percent difference.

Figure 39: Teachers' salaries vs. public and private sector salaries

⁵⁶ McEwan (1998).

⁵⁷ Rockoff (2004); Evans and Yuan (2018).



Source: World Bank staff calculations using data from ministries of finance of FBiH, 2018

62. **Teachers’ wages are not tied to performance, which itself is not measured.** Teachers’ salaries are generally perceived to be low, despite the above-mentioned information and the fact that the majority of the education budget is used to pay wages.⁵⁸ At the same time, teacher performance is not measured in any systematic or productive way, let alone used to inform decisions about teacher promotion or compensation. While the international research evidence on linking teacher compensation to teacher performance shows mixed results⁵⁹, monitoring and tracking teacher performance helps to strengthen the monitoring and accountability culture in the education system while also serving as a precondition for improvements to teacher career advancement and career ladders.

63. **Standards for determining teachers’ compensation are inconsistent across the country because base salary, allowances and coefficients are adjusted regularly based on collective bargaining agreements.** In Sarajevo, for example, coefficients are used as a starting point for calculating teachers’ salaries in primary and secondary education and are negotiated by the Trade Union and the Sarajevo cantonal government. Coefficients depend on qualifications and level of education taught. The agreed base salary for the lowest complexity of jobs cannot be below 70 percent of the average net salary paid per employee in FBiH in the past three months. The basis for salary calculations is agreed before the adoption of the draft budget by the Government. The formula for calculating teachers’ salaries is determined on the basis of teachers’ professional qualifications and performance and working conditions. In addition to the basic salary, teachers have payroll allowances (meal and transport allowance and other benefits) in accordance with the Collective Agreement. Depending on a teacher’s performance and available financial resources, school boards in Sarajevo may also increase the salary up to 20 percent, bi-annually. The process for determining teachers’ salaries in Sarajevo appears to be relatively consistent across other cantons and in RS, although the existence of separate collective agreements across cantons and RS contributes to wide variation in monthly salary.

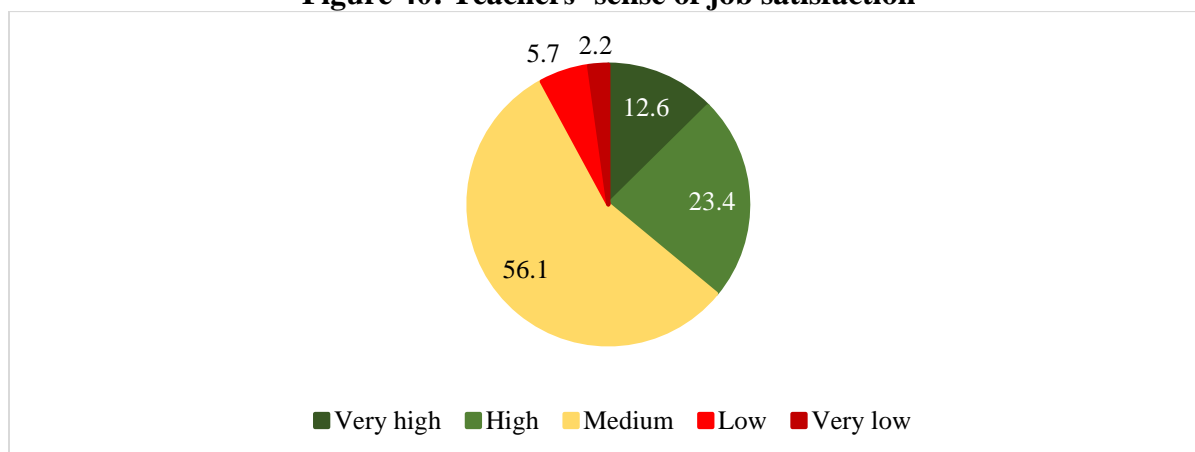
⁵⁸ USAID (2017a)

⁵⁹ Glewwe, Ilias, and Kremer (2010); Breeding, Beteille, and Evans (2018)

64. **Teacher selection criteria vary across cantons and are not fully meritocratic.** Teacher selection processes also vary across cantons. Some cantons, like Tuzla have centralized processes, while others have school-based selection processes. There is also some evidence that selection processes involve non-meritocratic criteria, such as years of unemployment registered with the Unemployment Service, which is a criterion used in Sarajevo Canton. This criterion afford the candidate more points towards ranking than years of experience. This stands in opposition to good international practice, which indicates that meritocratic selection yields better learning outcomes even when teacher assessment systems are imperfect. For example, in Mexico, the introduction of a standardized test to select teachers resulted in substantial improvements in student learning, largely because it resulted in a much wider sample of candidates.⁶⁰ Many countries across the world have moved towards such a system of incorporating a test into their teacher hiring practices.⁶¹

65. **Teachers’ sense of job satisfaction can be improved.** Although available data on teachers in BiH is relatively outdated, the teacher survey results of TIMSS are informative for understanding issues influencing the teaching career and teachers’ motivations. Only 36 percent of teachers felt very satisfied with their job and 56 percent felt moderately satisfied (Figure 40). Research shows the professional conditions of teaching influence teacher motivation and attrition.⁶² Low pay, heavy workloads, and large class sizes can significantly demoralize teachers. However, in BiH, class sizes have mostly declined in many regions of the country, suggesting that workloads or working conditions or other trends affecting the profession may be more important to study in more detail going forward. Teaching is also becoming more challenging due to increased demands to teach complex skills, heightened control by administrators, and decreased time to plan and collaborate with colleagues. However, a supportive professional work environment can reduce these pressures and improve teachers’ motivation and effectiveness. Understanding these dynamics in BiH in more detail would help to identify further entry points for improving service delivery via teachers’ practices and motivation.

Figure 40: Teachers’ sense of job satisfaction



Source: World Bank calculations using TIMSS 2007 database

⁶⁰ Estrada (2015)

⁶¹ Cruz-Aguayo et al. (2017)

⁶² UNESCO (2018).

66. **The use of information and communication technology (ICT) in education can play a crucial role in providing new and innovative forms of support to teachers, students, and the learning process more broadly.**⁶³ When implemented correctly, software in the classroom, for example, can allow students to learn at their own pace and tablets can help children develop important digital skills and computer know-how that they will need to succeed in our knowledge-based economy. Technology can also help teachers to boost student engagement, identify learning gaps and track progress of students over time, and support deeper learning. In line with this, ICT—with proper training and incentives—can also be used to streamline and facilitate teachers’ work on grading, monitoring, and assessment. For example, electronic grade books have been introduced in Sarajevo canton to facilitate grading and tracking of students. This type of practice should be assessed in more detail to explore the extent to which it facilitates teachers’ work.

Pre-Service and In-Service Teacher Training

67. **Requirements for entering the teaching profession are high and generally aligned with other European countries.** Preschool, primary and secondary education teachers are required to complete the first cycle of higher education, 180 or 240 ECTS credits in order to gain access to the teaching profession.⁶⁴ However, initial teacher education is under the jurisdiction of entities and cantons, and there is no uniform system of quality control for teacher training programs. Initial education is provided by various faculties (depending on type of teacher education program), but because of the high degree of autonomy and decentralization, curricular content varies greatly.⁶⁵ Although entrance requirements to the teaching profession vary, many cantons also require candidates for teaching to successfully pass a professional examination at the culmination of the program and/or receive a certificate on ability to work with children. However, the quality of these professional exams is unknown.

68. **However, the teacher workforce historically required different entrance requirements, so the profession contains many teachers with lower levels of training.** According to the 2007 TIMSS analysis of teacher quality in BiH, only about 8 percent of the grade 8 teachers had completed a first bachelors degree and 0.6 percent had completed a masters or doctorate degree. Most teachers (90 percent) had only finished higher school. Additionally, around 12 percent of the teachers felt that they were not very prepared for at least one of the constructs they were expected to teach.

69. **In-service teacher training appears to be insufficient and highly dependent on donor-funded programs.** Pedagogical institutions across the country are in charge of in-service professional teachers’ development, although their capacity appears to be extremely limited, in part due to budget cuts over recent years. Several recent assessments identify serious problems in both pre-service and in-service teacher training, including an insufficient system of teachers’ professional development and advancement. Entity and cantonal ministries of education have

⁶³ World Bank (2018c).

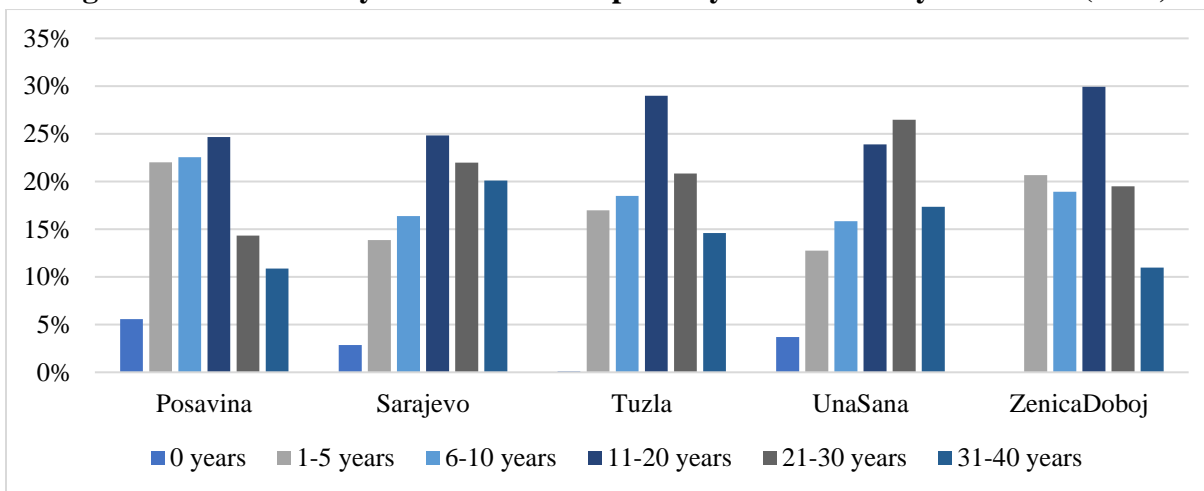
⁶⁴ EACEA (2019). ECTS refers to “European Credit Transfer System” is standard established by the Bologna Process used as a means for comparing the “volume of learning based on the defined learning outcomes and their associated workload” for higher education across the EU and other collaborating European countries.

⁶⁵ USAID (2017a).

noted that the current situation with teachers’ professional development, particularly for primary teachers, is far from satisfactory.⁶⁶ As a result, pedagogical institutions and teachers are reliant on donor-funded initiatives which raises concerns as to the efficiency, sustainability, and piece meal approach. This is particularly the case with newer topic areas, such as inclusive education⁶⁷ and information and communication technologies (ICT).

70. **Most teachers have significant years of experience, yet they do not attend professional development, especially in areas that impact student learning.** In 5 cantons observed with individual-level data, teachers had on average 11-20 years of teaching experience (Figure 41). Although teaching experience is a proxy for teacher quality, available information suggests that access to and uptake of teacher training opportunities are more limited. Only 67 percent of 8th grade mathematics teachers attended professional development activities on mathematics content and approximately 60 percent of teachers attending trainings on mathematics pedagogy/instruction and curriculum (Figure 42). However, most teachers did not attend trainings on incorporating information technology into math or improving students’ critical thinking and problem-solving, and assessments. As mentioned, pedagogical institutions tend to have little capacity, with few resources to support and motivate teachers. Also, school leaders tend to focus exclusively on administrative tasks, with little time for instructional leadership. Failure to provide all teachers with well-rounded and adequate on-going trainings hinders teachers’ abilities to deliver modern and effective teaching practices.

Figure 41: Number of years of service in primary and secondary education (in %)

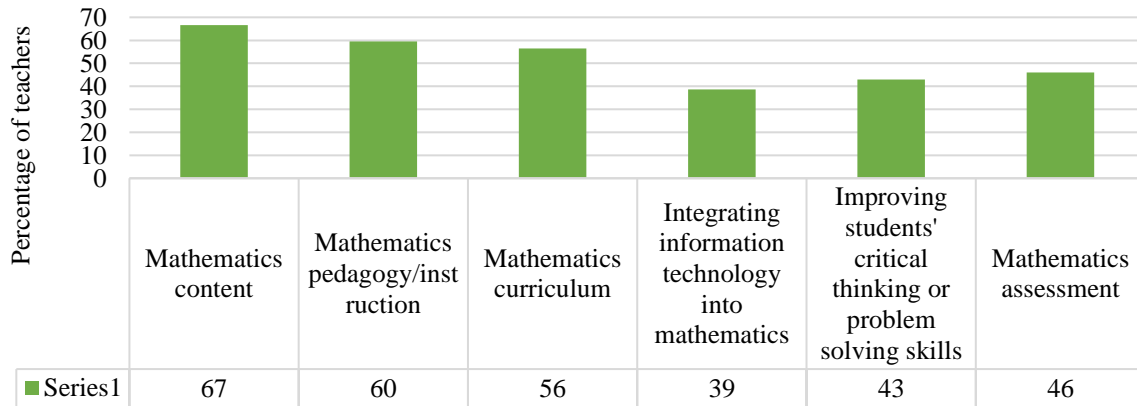


Source: World Bank staff calculations using data from statistical offices of BiH, 2018

Figure 42: Teachers’ participation in professional development activities over the last 2 years

⁶⁶ USAID (2017a).

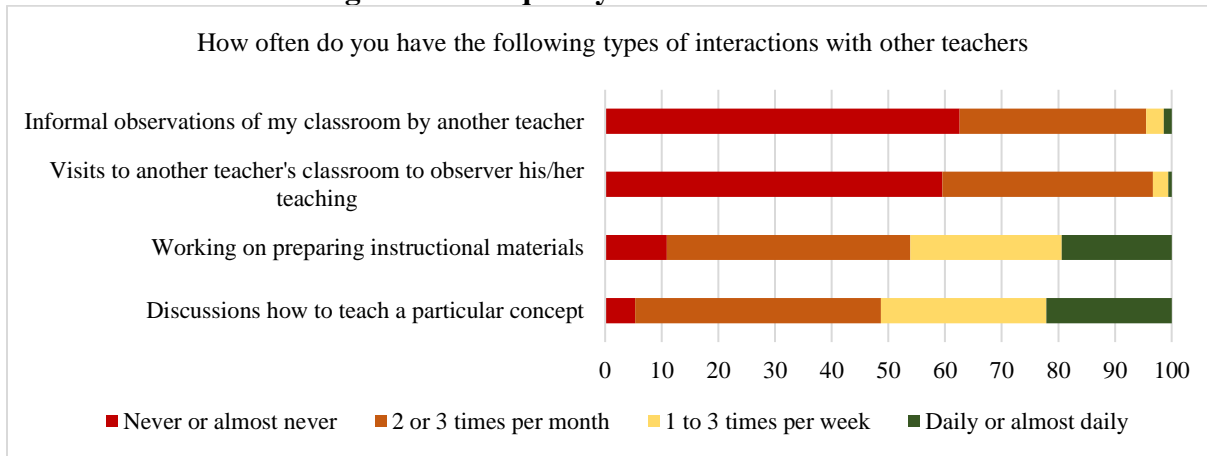
⁶⁷ For example, inadequacy of teachers’ competencies and insufficient training and expert support to teachers related to inclusive education are noted in several reports as specific challenges for teachers’ in-service professional development (USAID 2017a; OSF 2013).



Source: World Bank calculations using TIMSS 2007 database

71. **Collaboration and mentoring among teachers are also infrequent.** Activities that promote peer-to-peer learning and improve the effectiveness of teaching are not widely practiced in BiH. Over 60 percent of teachers never or almost never observed another teacher’s classroom or teaching method (Figure 43). Meanwhile, only about 46 percent regularly (on a weekly or more frequent basis) worked on preparing instructional materials together with other teachers, and about half discussed how to teach a particular subject with other teachers.

Figure 43: Frequency of teacher collaboration



Source: World Bank calculations using TIMSS 2007 database

72. **To summarize, teachers are the central educational resource to drive progress in student learning outcomes in BiH, and more focus is needed on their profession, their capacities, and their incentives.** Students and their learning are at the center of any education system, yet the majority of resources that go into that system finance teachers’ salaries. This demonstrates why teacher practices in the classroom are important to better understand. Additional information on teachers’ needs, through classroom observations, principal surveys and/or direct interviews would be valuable for contextualizing the above-mentioned findings. Further analysis of the policies and institutions that drive the quality and size of the teacher workforce would also be useful, especially given the decentralized nature of teacher policies in BiH.

VII. SUMMARY OF FINDINGS

73. **Available information on access and quality of pre-university education highlight key challenges, particularly given BiH's objective of EU accession.** Learning outcomes are below that of the EU and regional peers and a skills mismatch exists between the education system and labor market. Public dissatisfaction is also high for the quality of primary and secondary education. Access can be improved across all levels of pre-university education, especially in preschool and inequities exist for the most vulnerable populations—students from minority, poor and rural backgrounds. Improving education outcomes are vital for boosting human capital development and growth in the country. Human capital development is especially critical for Bosnia and Herzegovina given its efforts to gain EU accession by 2025 and boost productivity in the context of a declining population trend.

74. **However, pre-university education in BiH is characterized by low and declining levels of efficiency, which represents a major barrier to any effort to improve the quality of learning outcomes.** In recent years, despite decreasing enrollment and some efforts to reduce the number of schools in primary and secondary education, the number of teachers have increased in both RS and FBiH. Consequently, current STRs and average class sizes are below international benchmarking for all levels of pre-university education, especially in primary education. There are also notable variations across cantons and municipalities indicating inefficiencies.

75. **The distribution of education spending is inefficient and inequitable, and it leaves little room for needed investments in quality.** At 4.6 percent of GDP, BiH spends more than some peers in the region, but less than the EU and OECD averages of 5.1 and 5.2 percent, respectively. Per student spending relative to GDP per capita is also relatively high in BiH, compared to other countries. Nevertheless, there are notable variations in per student expenditure across entities and cantons. At 91 percent in FBiH and 87 percent in RS, personnel spending represents a large share of total spending, leaving little room for capital investments and other inputs that could improve learning, including preschool education for which there is high demand in BiH. The percentage of non-teaching staff is also nearly one-third of personnel costs, indicating that a large share of spending funds auxiliary work in schools that does not directly contribute to teaching and learning.

76. **Fragmentation and the nature of decentralization in the education system perpetuate inefficiencies and inequities across levels of education.** BiH has fourteen government bodies responsible for education in a country of just 3.3 million people and 422,645 students. The administrative costs of such a system are prohibitive and help to explain the fact that a high percentage of education funding is allocated to salaries. Furthermore, the decentralization of education in BiH has resulted in a highly inefficient allocation of school resources, with significant disparities in per pupil funding between entities and cantons and by level of education. The lack of a central authority to legislate or impel lower bodies to act has created a fractured, uncoordinated system, and the central level of government is powerless to address issues of efficiency, quality, and equity in the system.

77. **A high share of students at the secondary level go into secondary technical and vocational education and training (TVET), despite apparent misalignments between TVET school offerings and the needs of the labor market.** Many TVET profiles are outdated and/or poorly equipped to provide the skills needed by employers. This contributes to an inefficient use of resources while allowing the misalignment to persist, which has serious consequences like contributing to the very high youth unemployment rate in BiH. Going forward, it would be important to identify opportunities to review and consolidate TVET curricular profiles while introducing more mechanisms to link TVET offerings to the labor market.

78. **Teachers are a crucial resource that represent the majority of spending in the sector, yet structures in place are not well-designed to support or improve teacher performance.** Teachers are paid higher than the average private sector salaries and on par with the public sector in BiH, which contributes to the attractiveness of the profession, but wages are not tied to performance which itself is not measured. Standards for teachers' compensation are inconsistent across the country and teacher selection criteria in some cases consider non-meritocratic factors, such as years of unemployment. Though information on teacher workloads is limited, there is evidence that teachers' sense of job satisfaction could be improved. Greater support for professional development would be an important entry point for improving job satisfaction and overall performance, given that in-service training appears to be a particularly weak link in the system. For example, more support for teacher communities of practice at the school level and school management communities of practice at the municipal or cantonal levels could help to build motivation and lay the foundation for more opportunities for school-based professional development. Pedagogical institutes have limited capacity, and teacher in-service training relies largely on donor-funded programs. ICT tools to facilitate and streamline teachers' work could represent another important entry point. More effective support and management of teachers in BiH should be an important policy priority in the sector going forward as this would influence not just efficiency of spending but also quality of service delivery.

79. **Finally, there are no mechanisms in place to systematically measure or monitor the quality of education inputs, outputs, or outcomes, and data do not feed back into the policy-making process.** Although the legal framework regulating collection and systematization of data for the country is in place at state and entity levels and most cantons have adopted and harmonized their laws accordingly, education statistics and data are scattered. The BHAS compiles data from the entity institutes, however, they lack detailed student or teacher level data that would allow meaningful analysis. Furthermore, BiH does not have a state-wide student assessment system to measure learning across the country, and it does not participate regularly in international student assessments. Additionally, Pedagogical Institutes lack the capacity to support and regulate teachers' professional development. Thus, the limited internationally comparable statistical data, adequate indicators, and accountability mechanism on education quality in BiH are recognized as significant obstacles for setting and monitoring concrete policy goals in education in BiH. However, monitoring capacity in and of itself is unlikely to improve service delivery without credible efforts to improve processes of data utilization by relevant education authorities, school leaders, and teachers. School improvement and capacity building efforts must also be paired with monitoring and accountability mechanisms in decentralized contexts in order to see improvements in service delivery and outcomes.

80. **Moving into the next stage of analysis for this task, there is a clear need for more granular data on measures of service delivery, as well as a need to disseminate findings to generate and inform public interest in education.** Analysis to date has been constrained by data availability and limited stakeholder engagement. The stocktaking analysis contained herein has identified key issues with the efficiency of services, but identifying more concrete opportunities and recommendations for improving access and quality will depend largely on the specifics of the entity or canton, along with more granular data. PISA 2018 results, available in December 2019, will provide critical information on learning outcomes and their determinants, including on some dimensions of service delivery. However, in line with the overall assistance to public sector management in BiH, more data on instructional and managerial practices and workloads in schools would help to further identify opportunities to more productively utilize public sector employees working in schools.

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ANNEX 1: NOTE ON DATA SOURCES

This report relies on administrative education, expenditure and payroll data for RS and FBiH, though the analysis faced considerable data limitations and constraints due to low availability of data and limited responsiveness of counterparts.⁶⁸ Data on the education sector in BiH are particularly challenging given the fragmentation of the system and limited reporting of statistical authorities. BiH does not report data to UNESCO Institute for Statistics or other internationally comparable data sources, and much of the administrative data that is reported is aggregated. Although requests for data were sent to all 10 cantons and RS, complete responses were only received from three cantons.⁶⁹ As a result, this analysis relies heavily on publicly available administrative data on the education system from the state-level and entity-level⁷⁰ statistical offices, as well as budget execution reports from the latest year available (2016 or 2017 in most cases), which together allowed for the manual creation of a database for analysis at the country, entity, and canton level. Additionally, the analysis exploits micro-level payroll data available for 5 cantons and RS, as well as municipal-level data where available (see table 3 below).

Table 3: Sources of quantitative data for stocktaking analysis

Entity	Sources	Types	Year(s)
RS	RS Institute of Statistics	Aggregated education administrative data	2014-2018
	RS budget execution reports	Aggregated education expenditure data	2016-2017
	RS Ministry of Finance	Micro-level payroll data	2017
	RS Supreme Audit Institution	Performance audit report: Managing primary school resources	2018
FBiH	FBiH Institute of Statistics <i>10 of 10 cantons</i>	Aggregated education administrative data	2014-2018
	FBiH and cantonal budget execution reports <i>10 of 10 cantons</i>	Aggregated education expenditure data	2015-2016
	Cantonal ministries of finance <i>5 of 10 cantons: Posavina, Sarajevo, Tuzla, Una Sana, and Zenica-Doboj</i>	Micro-level payroll data	2017
	Cantonal ministries of education <i>3 of 10 cantons: Herzegovina-Neretva, Posavina, and Zenica-Doboj</i>	Detailed education administrative data	2017

Although school-level analysis was not envisioned for this stage of analysis, it is clear that more disaggregated data at the school level would facilitate a more in-depth look at the efficiency of service delivery while accounting for school- and community-specific characteristics. This report focuses on the distribution of resources across the education systems in FBiH and RS, and it provides a solid basis for understanding dynamics within the system over

⁶⁸ Please note that Brčko District was excluded from the analysis in this report given its small size in relation to FBiH and RS.

⁶⁹ Delays were due in part to the election period.

⁷⁰ In this report, “entity” is the label used for the two major jurisdictions of RS and FBiH.

time and the magnitude of inefficiencies in service delivery. However, the lack of disaggregated data presents a clear limitation requiring deeper analysis in the next stage of analysis.

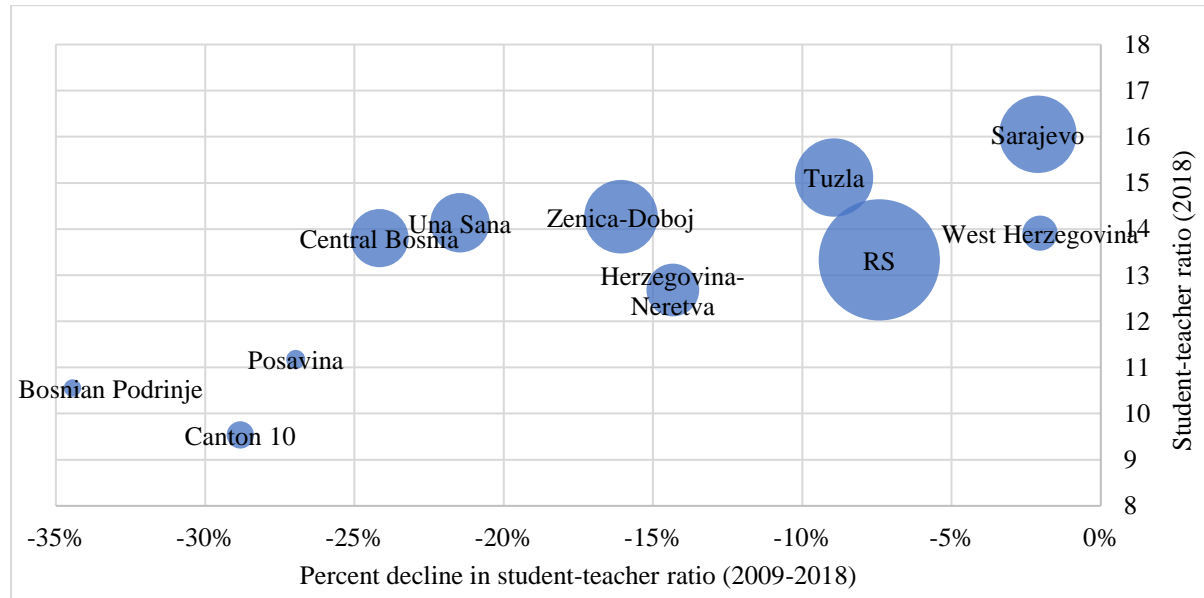
ANNEX 2: ADDITIONAL TABLES AND FIGURES

Table 4: Education Statistics and Efficiency Measures, 2017/2018

	Summary Statistics				Efficiency Measures					
	Number of schools	Number of classes	Number of students	Number of teachers	Average school size	Average class size	Student-teacher ratio	% Part-time teachers	Spending per Student (2016)	% Spending on Personnel Costs (2016)
Preschool										
Una Sana	16	358	1398	203	87	4	7	0%		
Posavina	3	9	158	28	53	18	6	0%		
Tuzla	23	89	2484	304	108	28	8	0%		
Zenica-Doboj	33	95	2017	276	61	21	7	0%		
Bosnian Podrinje	2	6	155	33	78	26	5	0%		
Central Bosnia	17	57	1034	130	61	18	8	0%		
Herzegovina-Neretva	27	99	2317	280	86	23	8	0%		
West Herzegovina	17	42	901	110	53	21	8	0%		
Sarajevo	52	183	4221	564	81	23	7	0%		
Canton 10	7	18	408	64	58	23	6	0%		
Total FBiH	197	956	15093	1992	77	16	8	0%		
RS	121	472	10240	1587	85	22	6	0%		
Primary Schools										
Una Sana	157	1141	21862	1791	139	19	14	27%	2,221.01	92%
Posavina	21	141	2246	226	107	16	11	22%	2,824.28	91%
Tuzla	208	1802	38026	3076	183	21	15	36%	1,966.46	92%
Zenica-Doboj	197	1740	33501	2745	170	19	14	29%	2,065.20	92%
Bosnian Podrinje	13	123	1884	202	145	15	11	23%	3,034.61	91%
Central Bosnia	135	1092	20953	1815	155	19	14	33%	2,697.72	89%
Herzegovina-Neretva	131	982	17230	1561	132	18	13	26%	2,677.29	93%
West Herzegovina	65	432	7651	597	118	18	14	16%	4,339.41	91%
Sarajevo	89	1635	37077	2627	417	23	16	24%	2,697.41	87%
Canton 10	50	349	4602	488	92	13	10	2%	2,976.86	93%
Total FBiH	1066	9437	185032	15128	174	20	14	28%	2,750.03	91%
RS	669	5042	90995	8122	136	18	13	32%	2,213.24	87%
Secondary Schools										
	Number of schools	Number of classes	Number of students	Number of teachers	Average school size	Average class size	Student-teacher ratio	% Part-time teachers	Spending per Student (2016)	% Spending on Personnel

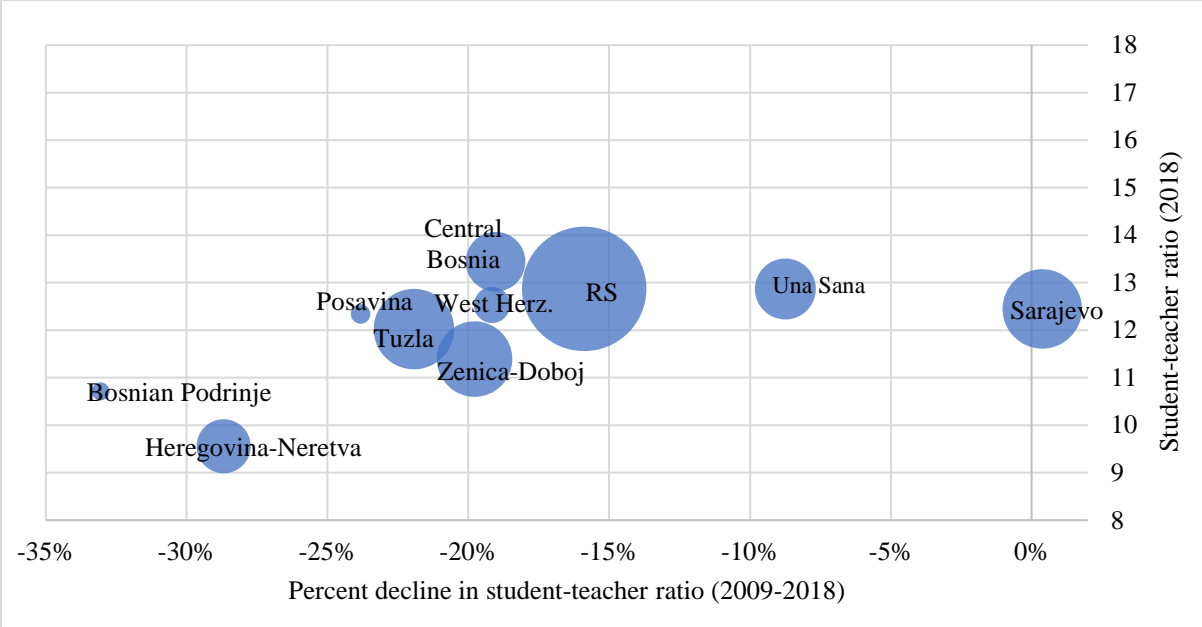
										Costs (2016)
Una Sana	22	404	9496	885	432	24	13	33%	2,471.71	95%
Posavina	3	52	1160	110	387	22	12	29%	2,549.12	91%
Tuzla	32	716	15966	1629	499	22	12	37%	2,281.57	93%
Zenica-Doboj	33	676	14006	1526	424	21	11	39%	2,497.39	90%
Bosnian Podrinje	3	45	964	113	321	21	11	41%	3,177.10	83%
Central Bosnia	24	462	10087	941	420	22	13	40%	2,143.06	89%
Herzegovina-Neretva	28	435	8089	1051	289	19	10	39%	2,721.83	93%
West Herzegovina	8	180	3803	346	475	21	13	25%	2,177.90	98%
Sarajevo	35	703	15926	1467	455	23	12	26%	3,568.32	90%
Canton 10	8	115	1957	230	245	17	9	13%	2,493.42	93%
Total FBiH	196	3788	81454	8298	416	22	12	34%	2,608.14	91%
RS	94	1758	39831	3771	424	23	13	36%	2,122.29	86%

Figure 44: Magnitude of inefficiency in primary schools



Source: World Bank staff calculations using data from statistical offices of BiH, 2018
Note: Bubble size represents student enrollment per canton/entity

Figure 45: Magnitude of inefficiency in secondary schools



Source: World Bank staff calculations using data from statistical offices of BiH, 2018

Note: Bubble size represents student enrollment per canton/entity