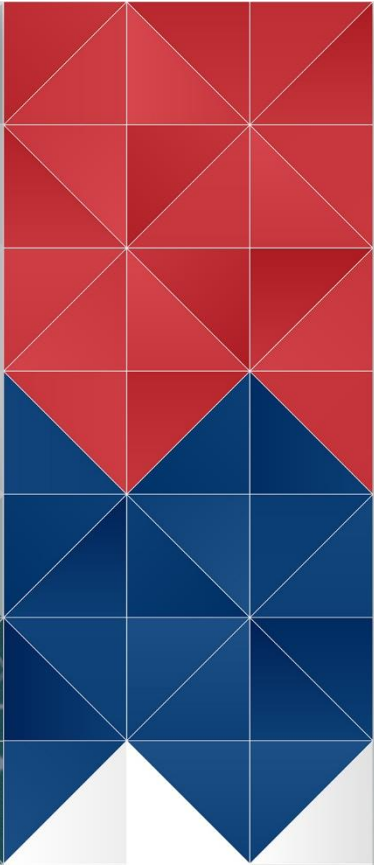
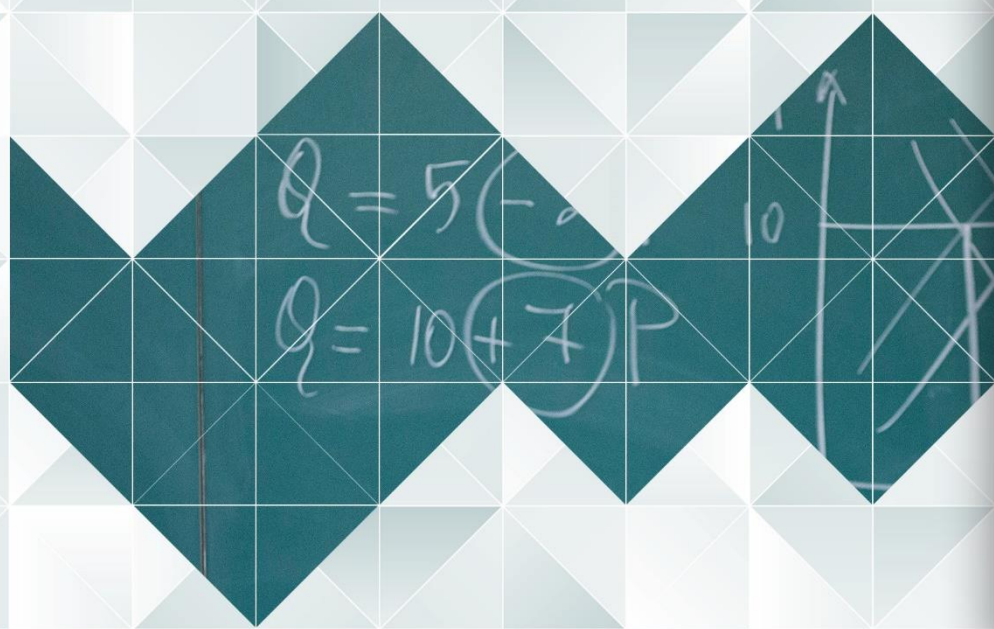


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REPUBLIC  
OF SERBIA

Synthesis Report

# INVEST IN EDUCATION EARLY, SMARTLY AND FOR ALL



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REPUBLIC OF SERBIA

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# CONTENTS

Abbreviations and Acronyms .....	iii
Introduction .....	1
Context .....	2
<b>CHAPTER 1. BARRIERS TO ACHIEVING LEARNING FOR ALL .....</b>	<b>5</b>
Insufficient Access to Preschool Education.....	5
Deficiencies and Disparities in Acquiring Basic Skills .....	10
Misalignment and Inequity in Upper Secondary Education .....	14
Social Exclusion of Minorities.....	18
<b>CHAPTER 2. RESOURCE MOBILIZATION AND UTILIZATION IN EDUCATION .....</b>	<b>20</b>
Education Expenditure .....	20
School Network .....	21
Staffing in the Education Sector .....	24
<b>CHAPTER 3. STAFFING AND TEACHERS' WORKLOAD IN SCHOOLS .....</b>	<b>31</b>
Staffing Norms.....	35
Work Allocation Practices in Schools .....	36
Control over Work Allocation Process in Schools .....	36
Curriculum.....	37
<b>CHAPTER 4. RECOMMENDATIONS FOR IMPROVING QUALITY .....</b>	<b>40</b>
Preschool Education.....	40
General Education .....	41
<b>List of Figures</b>	
Figure 1. Average years of lost employment for an individual, circa 2010 .....	3
Figure 2. Pre-Primary Enrollment Rate and Poverty Level, by Municipality (2014) .....	8
Figure 3. TIMSS Performance (4th Grade) and Income .....	10

Figure 4. PISA 2012 Mathematics Performance and Public Expenditure on Education .....	11
Figure 5. Student Performance in PISA 2003 and 2012.....	11
Figure 6. Disparities in Proficiency: PISA 2012 .....	12
Figure 7. NEET and Basic Cognitive Skills .....	13
Figure 8. VET Enrollment as a Share of Total Enrollment in Upper Secondary Education .....	14
Figure 9. Disparities in Reading Performance and Socioeconomic Status by School Type .....	15
Figure 10. Enrollment vs. Preference by VET Profile (2015-16) .....	16
Figure 11. VET Students vs. Classes, by Sector .....	17
Figure 12. Serbia and Comparator. Government expenditure on education as % of GDP .....	21
Figure 13. Evolution of School Network, 2000/01 to 2014/15.....	22
Figure 14. Evolution of Students, Schools, and Teacher in ECA Countries (2000-2014).....	23
Figure 15. Expenditure by Nature as % of Total Government Expenditure in Public Institutions .....	25
Figure 16. Distribution of Wage Bill, by Occupational Category .....	28
Figure 17. Student-Teacher Ratios and Class Sizes in Serbia.....	29
Figure 18. Attributing the Reading Gap between Serbia and Comparator Countries (PISA 2009) .....	32
Figure 19. Total Working Hours and Teaching Time per Week (Full-Time Teachers) .....	33
Figure 20. Hours Spent in Teaching, Pedagogical, and Other Tasks by Full-Time Teachers....	34
Figure 21. Recommended Minimum Annual Instruction Time in Full-Time Compulsory General Education (Grades 1-8, Hours).....	38

## List of Tables

Table 1. Gross Enrollment Ratios, by Level of Education, 2015 .....	7
Table 2. Part-Time Teachers as % of All Teachers, by Education Level .....	26
Table 3. Number of Staff in Each Occupational Category by size and status of appointment	27
Table 4. Activities Comprising Teachers' Workload .....	36



## ABBREVIATIONS AND ACRONYMS

<b>EC</b>	European Commission
<b>ECA</b>	Europe & Central Asia
<b>ECA-UM</b>	ECA Region Upper Middle Income Countries
<b>ECEC</b>	Early Childhood Education and Care
<b>ESCS</b>	Economic, Social and Cultural Status
<b>EU</b>	European Union
<b>FTE</b>	Full-Time Equivalent
<b>GDP</b>	Gross Domestic Product
<b>H</b>	High Income Countries
<b>IMF</b>	International Monetary Fund
<b>LSG</b>	Local Self-Government
<b>MoESTD</b>	Ministry of Education, Science and Technological Development
<b>NCF</b>	National Curriculum Framework
<b>NEET</b>	Not in Education, Employment or Training
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>PISA</b>	Programme for International Student Assessment
<b>PPP</b>	Preparatory Preschool Program
<b>RTA</b>	Roma Teaching Assistant
<b>SBA</b>	Stand-By Arrangement
<b>SES</b>	Socioeconomic Status
<b>SORS</b>	Statistical Office of the Republic of Serbia
<b>STR</b>	Student-Teacher Ratio
<b>TALIS</b>	Teaching and Learning International Survey
<b>TIMSS</b>	Trends in International Mathematics and Science Study
<b>UIS</b>	UNESCO Institute for Statistics
<b>UM</b>	Upper Middle Income Countries
<b>VET</b>	Vocational Education and Training



## INTRODUCTION

The demographic shift occurring in Serbia has had a profound effect on the education system. The student population has declined by 21 percent in primary schools and 13 percent in secondary schools since 2000, but the school network has changed little since then. This has resulted in a large number of schools with few students. Furthermore, the total number of teachers working in the education system has been increasing until very recently, creating further pressures on the education sector wage bill.

In recognition of such challenges in the education sector as well as other social sectors, the Government of Serbia has embarked on a program to review the organizational and functional structures of service delivery, supported by a Stand-By Arrangement (SBA) approved by the International Monetary Fund (IMF) in February 2015. The purpose of the program is to enhance productivity and performance in the delivery of public services while also reducing the wage bill in the public administration.

To this end, the World Bank, with support from the European Commission (EC), is conducting a functional review of the three social sectors: health, education, and social protection. As part of the functional review described above, the World Bank is supporting Serbia's Ministry of Education, Science & Technological Development (MoESTD) to conduct an assessment of the education system with a focus on efficiency gains in order to ultimately improve the quality of service delivery and ultimately education outcomes. In this context, the World Bank is undertaking two analytical tasks, as described below.

- *School Network Rationalization Feasibility Study and Mapping Exercise.* The aim of this study is to evaluate the current organization of public pre-primary, primary, and secondary schools, identify the scope for reorganizing the network to balance efficiency improvements with equity concerns, and to identify opportunities for using space in underutilized primary schools to increase the coverage of preschool education. The results of this activity will inform the MoESTD about what options are feasible and which, if any, might create opportunities for savings. This task will be conducted by a research firm under the supervision of the World Bank.
- *Situation Analysis Report on Improving the Quality of Education in Serbia.* The aim of this report is to summarize barriers to improving education for all and identify areas for reform based on the administrative data and international benchmarking. This report will be aligned as much as possible with the MoESTD rationalization action plan, which was presented to the IMF in February 2017.



## Context

**Serbia is an upper middle income country and a candidate for membership in the European Union.** The global financial crisis exposed the structural weaknesses in Serbia's economic growth model and prompted the need for fiscal consolidation and an acceleration of the unfinished transition to a market economy. Serbia's government actively committed to pursuing challenging reforms, including reforming the state administration, public finances, and the economy, all while pursuing the European Union (EU) accession process. The government's economic reform focuses on ensuring economic and financial stability and creating an environment for economic recovery and growth to foster employment and raise living standards. In the education sector, these reforms have focused primarily on controlling the wage bill and enhancing efficiency of expenditures.

**However, a rapidly declining population poses challenges Serbia's efforts to ensure learning for all.** Serbia's population decline is among the fastest in the world. Between 2015 and 2050, Serbia's population is likely to decline by almost 17 percent due to low fertility rates.<sup>1</sup> In contrast, fertility rates for minority groups, like Roma, are relatively high. Estimates suggest that by 2030, as much as 30 percent of new labor market entrants would include individuals from minority backgrounds. Unfortunately, poor education outcomes for Roma have contributed to higher joblessness and lower wages, ultimately costing Serbia billions of dinar in productivity losses and direct fiscal losses.<sup>2</sup>

**The education system in Serbia has not responded proportionately to the decline in the student population, leaving resources stretched thinly in relation to an outdated vision rather than current needs.** The failure to adjust the school network in relation to the declining population has led to a large number of schools with too few students i.e. small schools. Furthermore, the number of teachers in Serbia has increased significantly since the 2000-2001 academic year, in both primary and secondary schools. On the other hand, the number of students and classes have been on downward trajectories during this same period. The inefficiency resulting from demographic decline has led to declines in school size and other key indicators such as average class size, student-teacher ratio, and teachers per class.

**In addition to demographic decline, years of lost employment is a significant problem in Serbia.** Among 25-34-year-olds, 35-44 year-olds, and 45-54 year olds, the average Serbian spends 3-4 years in unemployment or inactivity. This number rises to 6.3 years among 55-64-year olds. The average female in Serbia spends 17 years of her working life in unemployment or inactivity. This compares unfavorably with EU and OECD countries (Figure 1). In this context, Serbia is missing out on its human capital potential to spur growth.

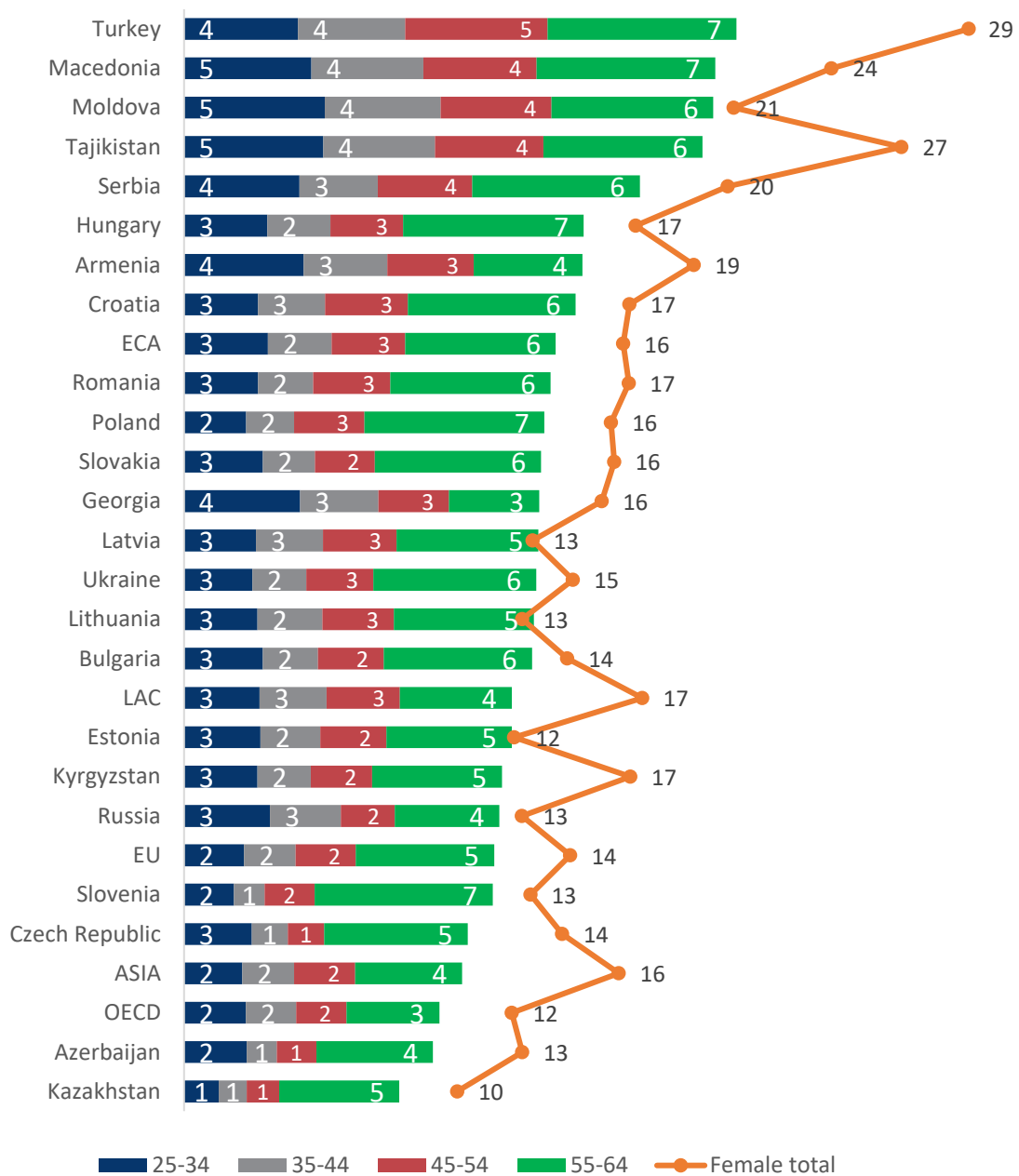
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<sup>1</sup> UN Population Division, World Population Prospects, The 2015 Revision

<sup>2</sup> World Bank (2010). "Roma Inclusion: An Economic Opportunity for Bulgaria, Czech Republic, Romania and Serbia." Europe and Central Asia, Human Development Sector Policy Note 69655.



**Figure 1. Average years of lost employment for an individual, circa 2010**



Source: World Bank (2014), *Back To Work: Growing with Jobs in Europe and Central Asia*

**At the same time, the education system must prepare students for the challenges of tomorrow, including trends that are reshaping society and the economy in Serbia and beyond.** For example, the OECD identifies several high-level trends shaping education especially in developed countries, including growing integration of people and organizations across national borders, new questions around the role of the nation-state, increasing urbanization, evolving family structures, and the unpredictable pace of technological development.<sup>3</sup> Such trends affect the skills that students need to live, thrive, and compete in

<sup>3</sup> OECD. (2016). *Trends Shaping Education 2016*. OECD Publishing, Paris.

economic and social life. As countries become richer and move up the value-added chain, the types of skills required also change, often with increasing demand for high-level cognitive skills such as analysis, problem solving, and communication. The education system is forms the basis for skill acquisition. There are opportunities at all levels of education to introduce reforms aimed at improving the quality of education and ultimately fostering the skills needed for the challenges of the 21<sup>st</sup> century while offering resilience against economic and social change.

**Addressing the challenges facing Serbia's education system should be a critical dimension to ongoing reforms aimed at improving efficiency in the sector.** The demographic decline has a significant effect not only on the efficiency of expenditure, but also on the quality of education. World Bank research from across the region shows that there are strong correlations between declining class and school sizes and access to a quality learning environment. International evidence also shows the economic impact of workforce skills on growth and shared prosperity. This evidence suggests that the quality of education is one of the most important determinants of long-term economic growth. For these reasons, reforms in the education sector should focus on improving quality of service delivery *while* enhancing efficiency of expenditures.

**The methodology for this report incorporates both quantitative and qualitative data analysis, as well as findings from other relevant studies on Serbia's education system.** In particular, this report summarizes the findings of a series of inputs prepared under the Serbia Education Functional Review task. These findings are based on quantitative analyses of statistical data on the education system and the network of schools, staff, and students. They are also based on in-depth qualitative data collected through structured interviews with schools. This report aims to synthesize all analyses on Serbia's education system performance conducted for this task, identify high-level messages for policymakers, and recommend potential actions to enhance learning for all in Serbia.



## CHAPTER 1. BARRIERS TO ACHIEVING LEARNING FOR ALL

**Learning for all in Serbia is hindered by several structural barriers which generate inefficiencies in the system and also serve as missed opportunities to equip the next generation.** In particular, the findings of the Education Functional Review have highlighted four barriers: (i) insufficient access to preschool education, (ii) disparities in learning outcomes, especially based on socioeconomic background, (iii) misalignment in upper secondary vocational education between supply of programs and demand on the part of students and the broader economy; and (iv) social exclusion of minorities. This section describes these barriers in detail.

### Insufficient Access to Preschool Education

**Early childhood education and care, including preschool education, is critical for the formation of socioemotional skills and also sets the basis for acquiring cognitive skills.** International evidence shows that the lack of early learning and development opportunities often explains poor learning outcomes in primary and secondary education. Globally, many young children from the most vulnerable households (i.e. the poorest and/or most marginalized) do not enter primary school ready to learn and do not reach their full development potential in life, in part because they are not exposed to sufficient opportunities for early learning and development. For example, studies in five Latin American countries (Nicaragua, Ecuador, Colombia, Peru and Chile) recorded large cognitive differences between children in the poorest and richest segments of society. The bulk of these differences was apparent by age 3 years, often worsened by age 6, and remained largely unchanged after

that.<sup>4</sup> These early gaps do not narrow by themselves and set children from disadvantaged backgrounds on a sub-optimal life trajectory for the rest of their lives.

**Analysis of Serbia's performance in the OECD's Programme for International Student Assessment (PISA) confirms that attendance in early childhood education and care (ECEC) programs predicts improved student performance.** After controlling for socioeconomic characteristics, analysis of PISA 2012 data shows that participation in ECEC programs predicts later performance in mathematics. Serbian children who attended such programs for more than one year scored on average 14 points higher than other students. Furthermore, ECEC interventions have been shown to have significant and long-lasting benefits. As a result, they have not only a high cost-benefit ratio but also a higher rate of return for each dollar invested (7 to 16 percent annually in the United States<sup>5</sup>) than interventions directed at older children in the primary, secondary, and tertiary education sub-sectors. For that reason, many countries invest public resources in ECEC as a way to enhance both efficiency and equity in their education system.

**The Government of Serbia is well aware of the benefits generated by early childhood education, having made one-year preschool education mandatory.** The Preparatory Preschool Program (PPP), Serbia's mandatory year of preschool education, covers approximately 90 percent of children aged 5.5 to 6.5 years and enrollment rates have increased since implementation began in 2006-2007. This matches Serbia's universal coverage in primary education and near universal coverage in secondary education, which compares favorably with other upper middle income countries in the Europe & Central Asia (ECA) region and with the EU.

**However, access to preschool education for children aged 3-5 is insufficient.** In contrast with the high enrollment rates of the PPP, access to preschool for younger children is considerably lower, especially in comparison to the EU 2020 target of 95 percent of children enrolled in preschool education starting at age 4. According to the UNESCO Institute for Statistics (UIS), Serbia had a gross enrollment ratio at the pre-primary level of 59 percent as of 2015 (see Table 1 below). By contrast, neighboring countries such as Bulgaria and Romania—which have the same income classification as Serbia—have a pre-primary gross enrollment rate that is 24 and 31 percentage points higher, respectively, than Serbia. Compared with the European Union (EU) average of 93 percent, Serbia lags far behind in access to pre-primary education. Given the critical foundational role of preschool education and the high access in primary and secondary education, the low enrollment in preschool education represents a critical barrier to improving quality of the education system.

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<sup>4</sup> Schady et al., 2014.

<sup>5</sup> Heckman et al., 2009.

**Table 1. Gross Enrollment Ratios, by Level of Education, 2015**

Country/Region	Preprimary	Primary	Secondary	Tertiary	Income classification
Turkey	28	107	100	79	upper-middle-income
Macedonia	29	86	82	39	upper-middle-income
Montenegro	55	94	90		upper-middle-income
<b>Serbia</b>	<b>59</b>	<b>101</b>	<b>94</b>	<b>58</b>	<b>upper-middle-income</b>
Croatia	61	99	99	70	high-income
<b>Europe and Central Asia (8)</b>	<b>67</b>	<b>99</b>	<b>96</b>	<b>65</b>	<b>upper-middle-income</b>
Greece	76	99	108	110	high-income
<b>Europe and Central Asia (18)</b>	<b>77</b>	<b>100</b>	<b>101</b>	<b>68</b>	-
Cyprus	77	99	99	53	high-income
Poland	77	101	109	71	high-income
Bulgaria	83	99	101	71	upper-middle-income
Hungary	84	102	107	53	high-income
Estonia	88	101	109	73	high-income
Albania	89	112	96	63	upper-middle-income
Romania	90	96	95	53	upper-middle-income
Latvia	91	100	115	67	high-income
Slovak Republic	92	101	92	53	high-income
Slovenia	93	99	111	83	high-income
<b>European Union</b>	<b>93</b>	<b>102</b>	<b>113</b>	<b>68</b>	-
Czech Republic	105	99	105	66	high-income
Belarus	105	99	107	89	upper-middle-income

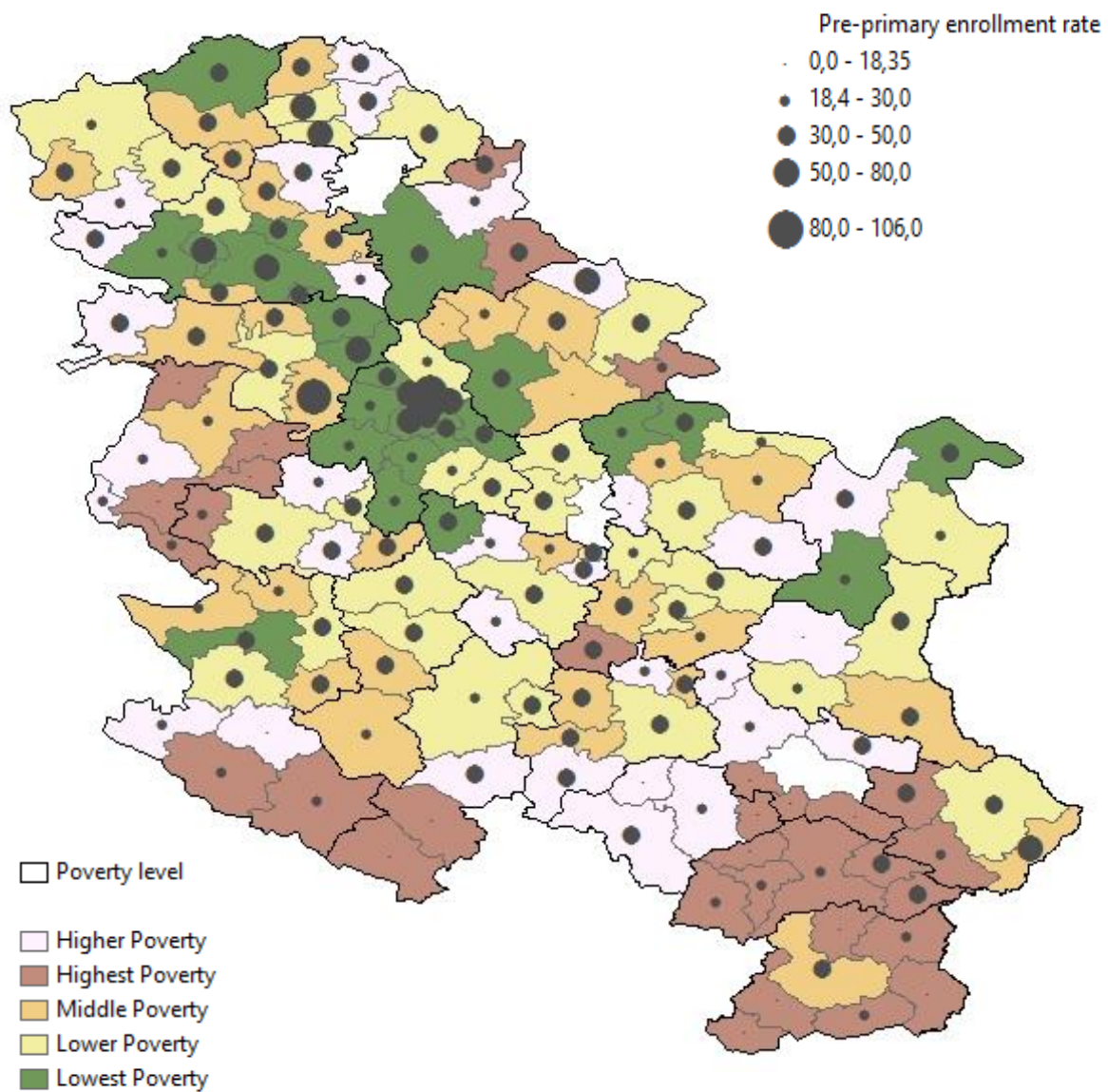
Source: UIS 2017

**Access to preschool education is also highly inequitable along income, ethnic, and geographical lines.** More than 80 percent of children in the wealthiest quintile are enrolled in preschool, but less than 10 percent of the poorest quintile are enrolled. While MoESTD figures place the national average enrollment rate in preschool at 52 percent for boys and 49 percent for girls, these figures are considerably lower for Roma children. Only 5 percent of Roma boys and 7 percent of Roma girls living in informal settlements are enrolled in preschool education.<sup>6</sup> There is also an important geographical disparity in access, with municipalities in the northern parts of Serbia generally having higher pre-primary enrollment rates than elsewhere. This is explained largely by the fact that northern municipalities have higher incomes. In fact, municipalities with the highest income have pre-primary enrollment rates

<sup>6</sup> UNICEF, Serbia MICS5 2014 and Serbia Roma Settlements 2014

over 20 percentage points higher than the poorest municipalities. At the same time, the poorest municipalities have the second highest live birth rate, meaning that demand for pre-primary education is growing fastest in the areas that currently have the lowest access. This means that the pre-primary enrollment gap between rich and poor municipalities could widen if no actions are taken.

**Figure 2. Pre-Primary Enrollment Rate and Poverty Level, by Municipality (2014)**





**Even in urban areas where preschool enrollment is higher, access is hindered due to overcrowding.** There is further evidence that many existing preschools in Serbia are overcrowded, with upwards of 40 children in a group despite the fact that this exceeds the child-teacher norm for preschools of 24. In fact, overcrowded preschool facilities was reported by parents as one of several key reasons for why children aged 3-6 years to not attend preschool, based on the UNICEF MICS 2014 study. For example, recent data from the municipality of Palilula, within the city of Belgrade, shows an *increasing* preschool-age population as well as many preschool groups with average enrollment exceeding 30 children and some exceeding 40 children.<sup>7</sup> Although providing access is a first step, the overall value of preschool education is diminished when this access is hindered due to overcrowding.

**Expanding access to quality preschool will require a pro-equity approach, rather than the current regressive system of financing by local governments.** Local self-governments (LSGs) finance early childhood programs in Serbia using total costs of preschool education per child<sup>8</sup> that vary widely across regions. LSGs finance 80 percent of the total cost per child, while parents finance the remaining 20 percent. Thus, not all municipalities are able to provide preschool services, and children from vulnerable groups are particularly disadvantaged in terms of access because the required co-payment places an unfair and disproportionate burden on low-income families.

**Beyond access, the range of benefits from preschool education are conditioned by the quality of services.** Serbia continues to work toward universal (not mandatory) preschool education by both expanding access and improving quality. Increasing quality requires an improvement in a number of factors including the curriculum.<sup>9</sup> There are three main shortcomings of the current National Curriculum Framework (NCF) for ECEC in Serbia. First, The NCF comprises three separate program documents (for children aged 6 months to 3 years; for children age 3 until enrolment in the mandatory PPP; and for children enrolled in PPP). The programs are neither mutually aligned nor coherent with each other. Second, the curriculum for children from age 3 until their enrolment in the PPP contains two different program models: child-centered and teacher-centered. Third, the mandatory PPP curriculum also has different models and none of these are aligned with the educational conceptions from the previous curricula (for children from age 3 until their enrolment in PPP).

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<sup>7</sup> "ECEC Situational Analysis at the Municipality Level: 10 Municipalities." 2016 Report.

<sup>8</sup> *Early Childhood Education and Care in Serbia: Situational Analysis and Recommendations* identifies total costs per child as economic price per child; UNICEF *Investing In Early Childhood Education in Serbia* uses the term Total Costs of Preschool Education (TCPE) per child.

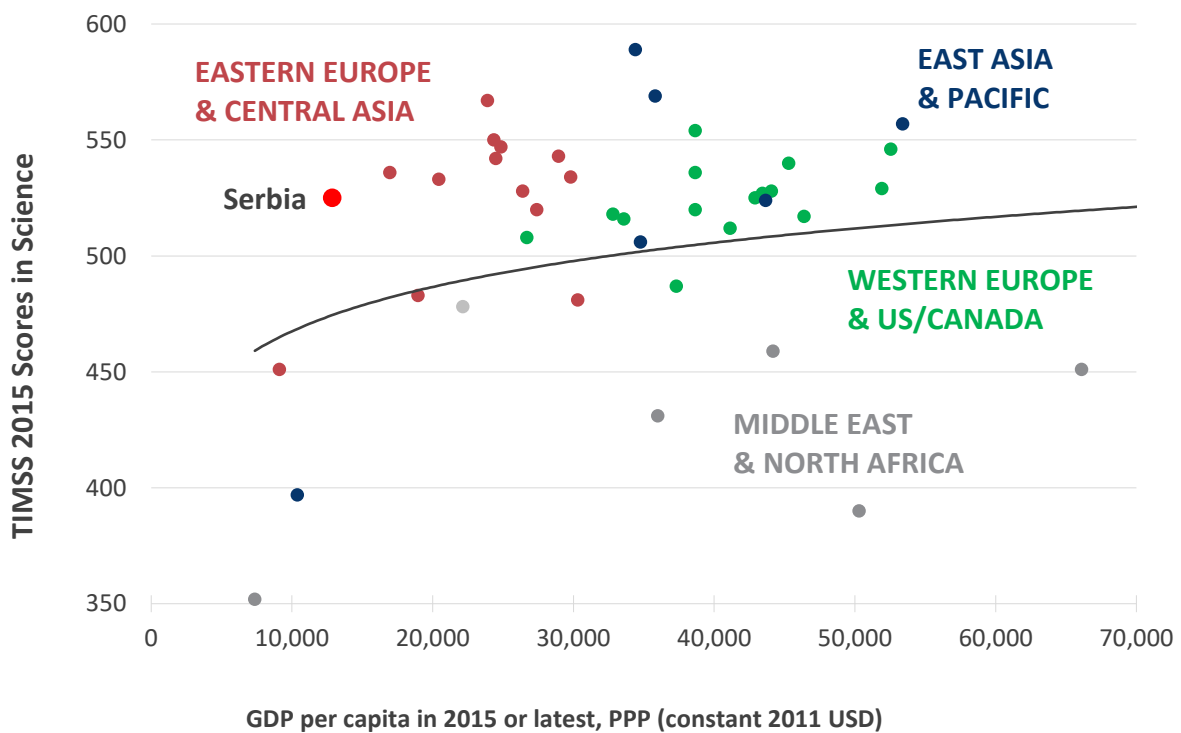
<sup>9</sup> Mandatory would require everyone to attend, while universal would suggest that it would cover everyone who would like to attend.



## Deficiencies and Disparities in Acquiring Basic Skills

Ensuring learning for all in Serbia requires assessment of the skills and knowledge that students acquire through the education system. Although access to education is an initial hurdle, Serbia has high enrollment rates through primary and secondary education. However, a critical measure of the system's performance is the acquisition of cognitive skills through schooling. The lack of cognitive skills constrains the ability of individuals to learn in higher education, vocational education and training, as well as lifelong learning. A lack of cognitive skills also inhibits a person's ability to find and retain a productive job. Therefore, a modern education system must prioritize and measure learning outcomes over system inputs.

Figure 3. TIMSS Performance (4th Grade) and Income

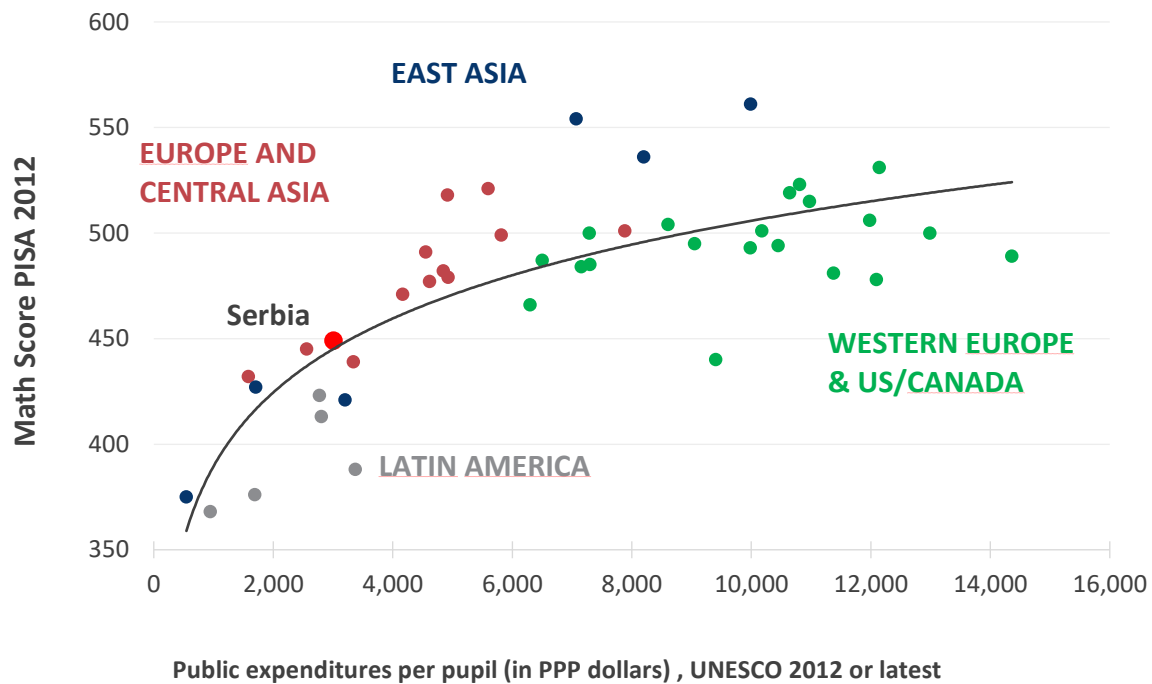


Source: TIMSS 2015; UIS

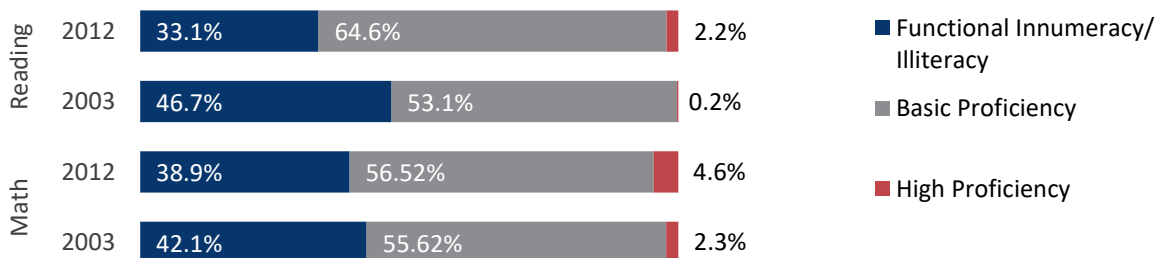
Given its income level, Serbia performs well on international student assessments, but lags behind other EU and OECD countries. Serbia has participated in two large-scale international student assessments in recent years, namely the Trends in International Mathematics and Science Study (TIMSS) in 2015 and the Programme for International Student Assessment (PISA) in 2012. The TIMSS 2015 study measures performance in mathematics and science for Grade 4 students, while PISA measures performance in reading, mathematics, and science for 15-year-old students, roughly corresponding to Grade 9 in Serbia. Compared to other countries with similar income levels, Serbia performed relatively well on TIMSS 2015 (see Figure 3). However, Serbia lags behind other countries in Eastern and Western Europe. Data

from PISA 2012 show a similar trend. Serbia outperformed neighboring countries with similar per-student education expenditures such as Bulgaria and Romania, but it falls below other countries in the EU and OECD (see Figure 4). In total, approximately 40 percent of 15-year-old students in Serbia are below basic proficiency for reading and mathematics, a lag equivalent to 1 year of schooling behind the OECD average.

**Figure 4. PISA 2012 Mathematics Performance and Public Expenditure on Education**



**Figure 5. Student Performance in PISA 2003 and 2012**

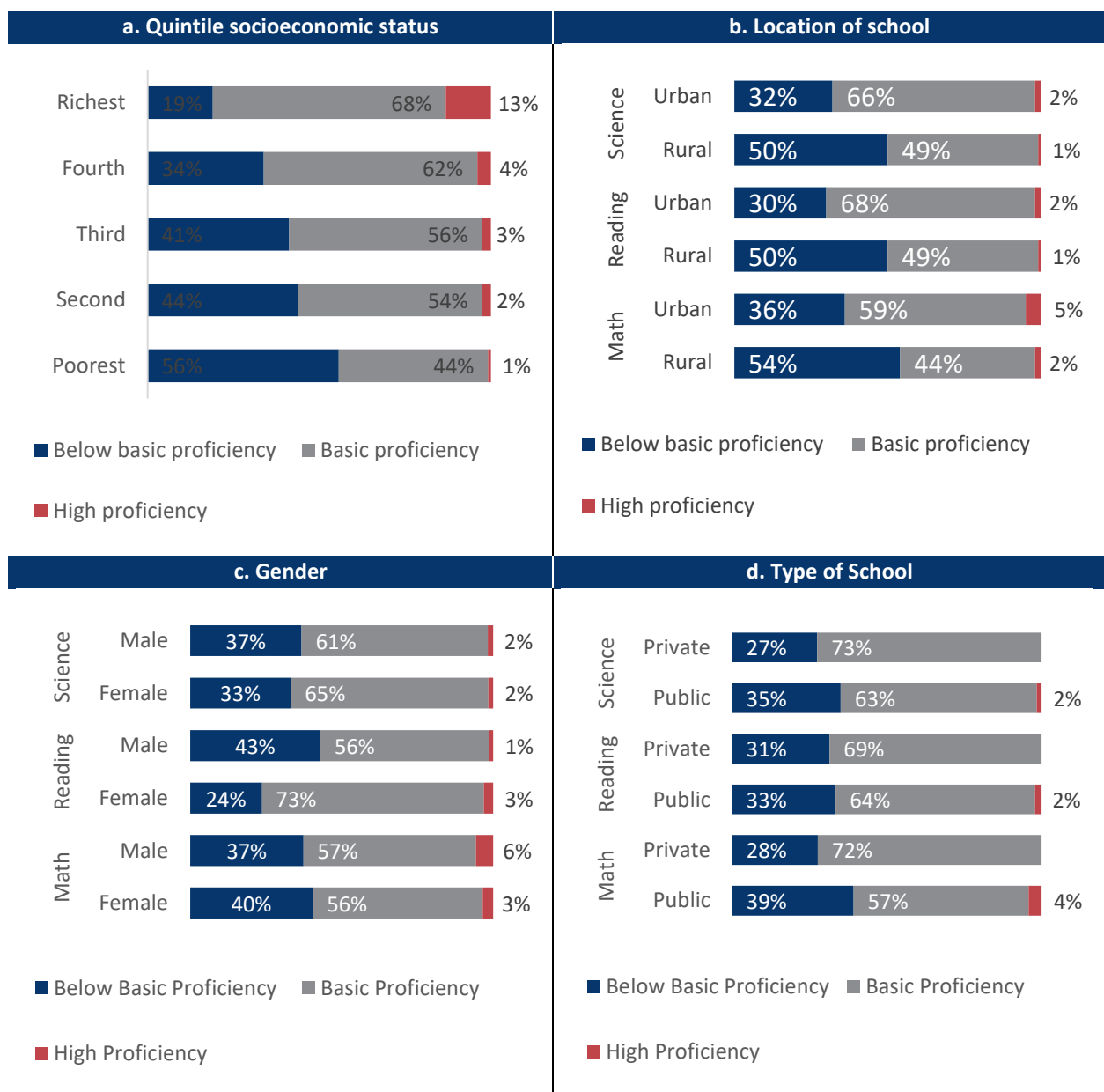


Source: World Bank authors based on PISA 2012 data

**Serbia has reduced the share of 15-year-olds performing below basic proficiency since 2003, though functional illiteracy and innumeracy remains high.** PISA scores below Level 2 in mathematics and reading are considered to be below basic proficiency, equivalent to

functional illiteracy and innumeracy. Compared with PISA 2003, Serbia has made improvements in reducing the share of low-performers in mathematics and especially reading. However, these shares remain high with almost 40 percent of students performing below basic proficiency in mathematics, and roughly one-third of students in reading (Figure 5). These proportions are alarming, indicating a poor foundation of cognitive skills. They also point to significant challenges regarding cognitive skills for the current flow of students as well as the stock of skills for the future labor force of the country.

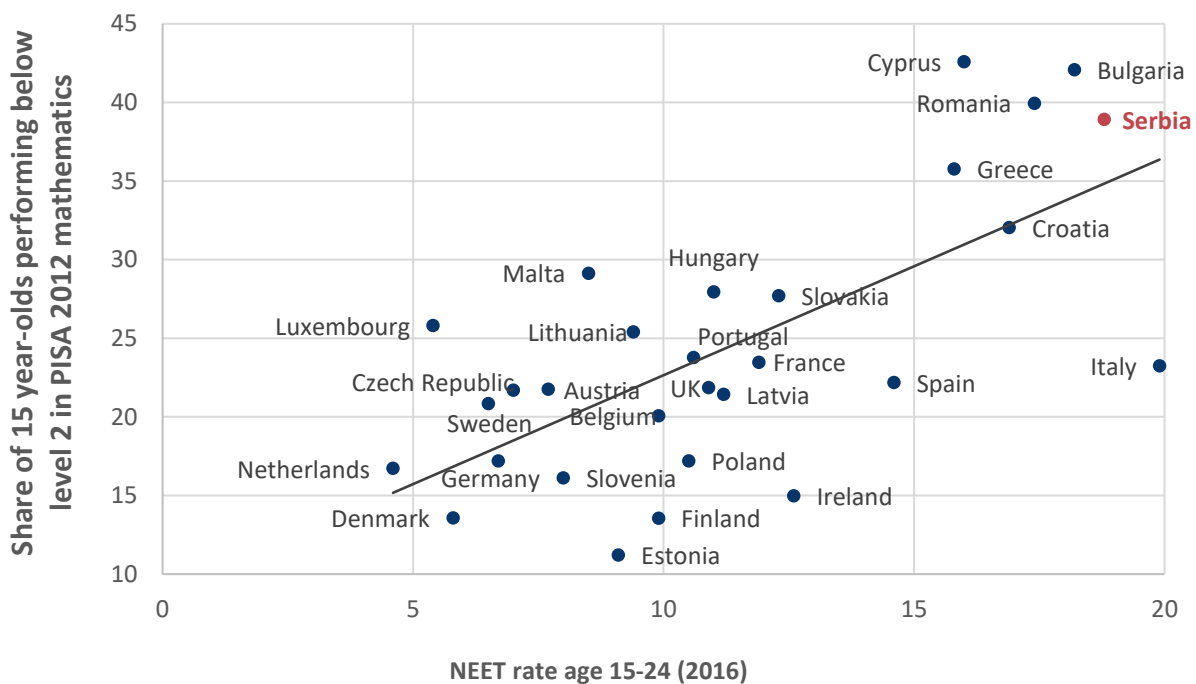
**Figure 6. Disparities in Proficiency: PISA 2012**



**PISA also reveals large disparities in Serbia between population sub-groups, reflecting many of the same disparities in access to preschool.** Socioeconomic status has been shown around the world to be a major predictor of academic performance, and PISA 2012 results from Serbia confirm this. 56 percent of the poorest students in Serbia are below basic proficiency in mathematics, compared with only 19 percent of students from the highest income quintile (see Figure 6). Urban versus rural residence—linked with socioeconomic status—is also a strong predictor of performance. Nearly 1 in 2 rural students are below basic proficiency regardless of the subject, reflecting significant challenges in relation to urban students. In reading, 43 percent of boys are below basic proficiency compared with 24 percent of girls. There are also disparities, though smaller, between students attending public versus private schools.

**PISA results reveal that many education systems—including in Serbia—face the challenge of preparing young people for the world of work.** Many education systems have continued to emphasize traditional teaching and learning strategies, focused on rote learning and repetition rather than a strong focus on problem-solving and real world issues. As a result, too many youths in countries such as Serbia are falling behind in basic cognitive skills. Furthermore, countries with a high share of low performers in math such as Serbia, also have high shares of youth who are not in education, employment, or training (NEET) (Figure 7). This suggests that the lack of basic cognitive skills serves as a barrier to further learning, either in the formal education system or in the workplace.

**Figure 7. NEET and Basic Cognitive Skills**

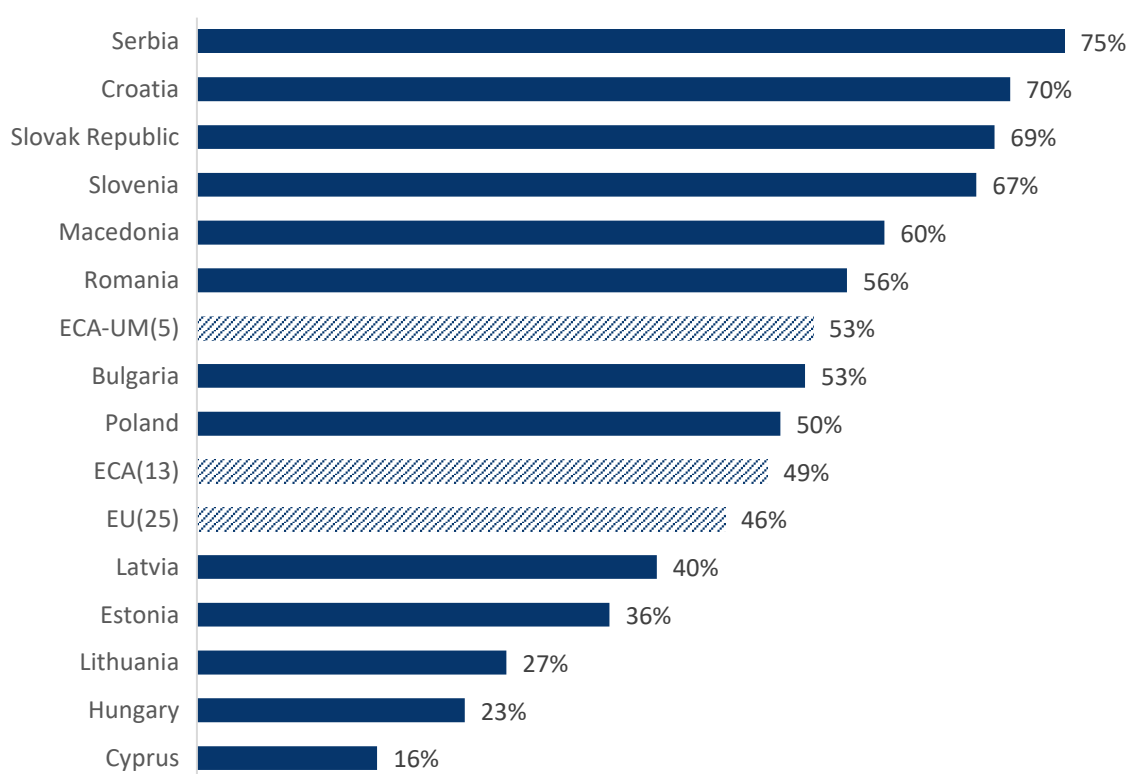


Source: World Bank staff calculations using OECD PISA 2012 and Eurostat data

## Misalignment and Inequity in Upper Secondary Education

At the upper secondary education level, approximately 75 percent of students in Serbia enter vocational streams rather than general education, which could exacerbate existing shortages and disparities in basic skills. In fact, Serbia has the highest share of students streamed into upper secondary vocational education and training (VET) in the region, surpassing the average of similar countries by 20 percentage points (see Figure 8). By contrast, 25 percent of upper secondary education students enter general upper secondary education (i.e. gymnasium level). This high concentration of upper secondary VET could further contribute to basic skills shortages and disparities arising from basic education and at least partly explain the fact that Serbia has a lower gross enrollment ratio in tertiary education compared with many neighboring countries and the EU average.

**Figure 8. VET Enrollment as a Share of Total Enrollment in Upper Secondary Education**



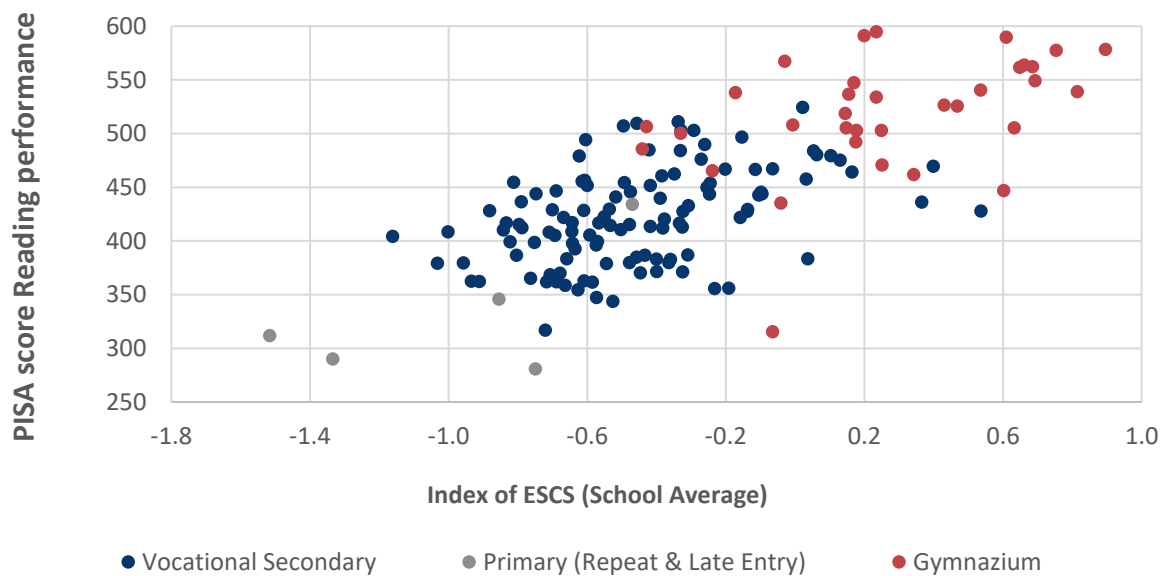
Note: ECA-UM= ECA upper middle income countries

Source: Eurostat (2017)

The structure of upper secondary education in Serbia may contribute to disparities in skills acquisition as well as socioeconomic segregation. A clear pattern emerges from analysis of PISA 2012 results, when disaggregated by school type. Gymnasia post significantly higher reading performance scores than VET schools, with differences in some cases of 200 or more

points. However, Figure 9 below also shows the relationship with socioeconomic status (ESCS).<sup>10</sup> Gymnasia tend to have a higher average school-level ESCS, consistently higher than the school's average ESCS for VET schools. This means that gymnasia and VET schools are distinctly separate, with students segregated by both socioeconomic status and reading skills.

**Figure 9. Disparities in Reading Performance and Socioeconomic Status by School Type**

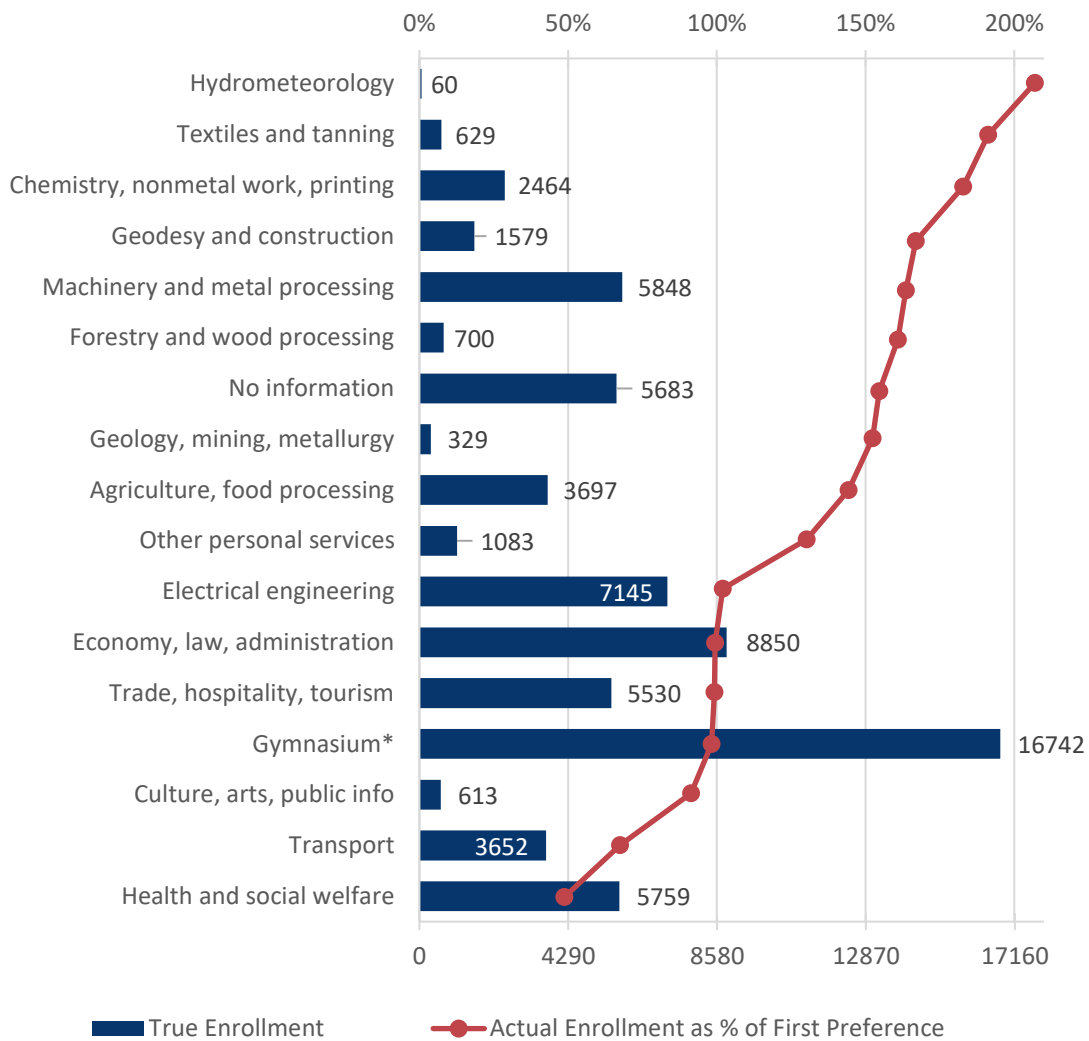


Source: Authors' analysis of PISA 2012 data

**There is a significant mismatch in students' preferences for upper secondary VET education and the supply of spaces in upper secondary VET institutions.** In Serbia, students complete an examination in the 8<sup>th</sup> grade which is used, along with marks, to admit students into general or vocational education streams. This process could exacerbate the shortage of basic skills, as low-proficiency students are streamed into VET schools rather than gymnasia. Because students rank their choices when submitting applications, it can be shown that there is excess demand for VET in service sector areas, especially health, social welfare and transport. In these sectors, demand exceeds supply by nearly 8,000 spaces, equivalent to over 10 percent of the total upper secondary student population. On the other hand, VET schools specializing in hydrometeorology, textiles, tanning, non-metal work and other related fields ultimately admit many more students than those who choose it as their first preference (though enrollment in these fields is low in absolute terms).

<sup>10</sup> ESCS is PISA's index of economic, social, and cultural status (ESCS). At the school-level, it is an index of the average socioeconomic status of students attending that school.

**Figure 10. Enrollment vs. Preference by VET Profile (2015-16)**



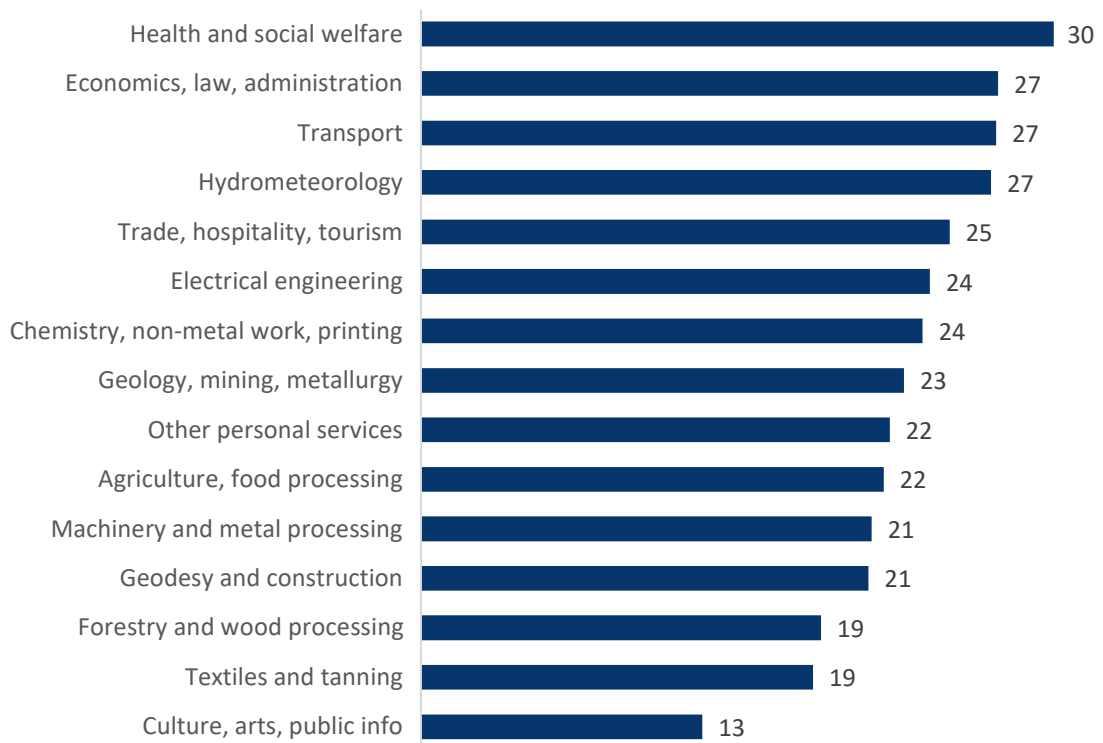
Source: MoESTD Matura examination database

**The organization of VET classes between sectors suggests significant variation in the use of resources, especially teaching staff, and the potential for efficiency gains.** Enrollment in secondary VET programs varies considerably, from approximately 200 students in the hydrometeorology sector to over 37,000 in the economics, law and administration sector. In fact, there are over 250 VET profiles, including both 3-year and 4-year profiles, organized into 15 sectors. Classes for each profile are organized according to enrollment, although the ratio of students to classes also varies considerably. For example, the culture, arts, and public information sector has 420 classes relative to total enrollment of approximately 5,600, meaning that one class is organized for approximately every 13 students in this sector (see Figure 11 below). For health and social welfare, one class is organized for approximately every 30 students. This suggests that resources used to deliver secondary VET education, including teaching staff, administrative staff, equipment, and infrastructure—are utilized with different



intensity, perhaps indicating that there is room for efficiency improvements by consolidating profiles, classes, or schools.

**Figure 11. VET Students vs. Classes, by Sector**



Source: SORS

**A large proportion of students go to higher education through vocational schools, further suggesting that streamlining secondary VET education may yield efficiency gains while also improving students' skills.** Evidence from other countries has shown that the cost of VET can be up to five times higher than that of general education schools. This is the result of higher non-teaching costs such as machinery and equipment, but also due to much smaller ratios of students to teachers and classes in VET high schools. In Serbia, the demand for 4-year VET profiles has increased over time, while enrollment in the 3-year profiles has declined over time. Part of the high demand for vocational schools may be explained by the fact that the gymnasium curricula has not been updated in over two decades, whereas vocational programs have multiplied and been updated, with some becoming very reputable. In addition, the high demand for 4-year VET profiles further indicates a growing interest among students about the possibility for continuing to higher education while retaining the option of going to the labor market better prepared.<sup>11</sup> This again highlights the need to ensure that resources dedicated to upper secondary education are producing the skills that students want, including those that prepare them for either higher education and/or the workplace.

<sup>11</sup> ETF (2013). Mapping of VET Educational Policies and Practices for Social Inclusion and Social Cohesion in the Western Balkans, Turkey and Israel. Serbia Country Report.

## Social Exclusion of Minorities

**Roma and other minorities will comprise an ever-growing share of Serbia's new labor market entrants, meaning that a particular focus on learning and skills development for minorities is needed.** Between 2015 and 2050, Serbia's population is likely to decline by almost 17 percent due to low fertility rates.<sup>12</sup> However, fertility rates for minority groups, like Roma, are relatively high. Estimates suggest that by 2030, as much as 30 percent of new labor market entrants would include individuals from minority backgrounds. Given Serbia's objectives of economic competitiveness and EU accession, it is essential that minorities—who will comprise a larger and larger share of Serbia's labor force—are equipped with the cognitive and socioemotional skills needed for the jobs of the future.

**Unfortunately, a dramatic gap in educational attainment for Roma compared to the majority population in Serbia represent a major barrier to this vision.** In 2011, only 6 percent working-age people in the general population had no formal education. In contrast, 40 percent of Roma have no formal education, with almost 1 in 2 Roma not having started or completed primary education. At the other end of the distribution, 3 in 4 people of working age have completed *at least* secondary education, while only slightly more than 1 in 10 working age Roma has achieved this level of education, or more importantly acquired the skills that accompany this level of education. The low educational attainment among the Roma population is a major driver of social exclusion from the labor market, reflected in both lower employment probabilities and lower wages.

**Social exclusion of the Roma in Serbia is not only a social and human rights challenge – it is also an economic challenge and comes at a considerable cost to the Serbian economy.** This economic loss is driven by worse employment outcomes, both in terms of higher joblessness but especially lower wages, among the Roma population. Among the general Serbian population 1 out of 2 working-age men and women have a job, but only a quarter of Roma do. Further, average income for Roma who are employed is only about half of what the general population can expect to earn if working. These account for an overall lower productive contribution to the economy by socially excluded Roma workers.

**In particular, research has shown that social exclusion of Roma in Serbia resulted in both productivity losses and direct fiscal losses.** In 2011, analysis shows that exclusion of Roma resulted in productivity losses to Serbia between 30.5 and 124 billion Dinar, or 308 million and 1.25 billion Euro, and in direct fiscal losses of between 7.6 and 30.8 billion Dinar, or 76.5 to 311 million Euro.<sup>13</sup> These productivity losses are equivalent to at least 0.90 percent and as much as 3.64 percent of Serbian GDP. The fiscal losses are equivalent to at least 1.2 percent of government expenditures and as much as 5.0% percent. With Serbia aging and the younger

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<sup>12</sup> UN Population Division, World Population Prospects, The 2015 Revision

<sup>13</sup> The lower and upper bounds correspond, respectively to Roma population estimates of 147,607 people (official statistics ) to 600,000 (average of alternative estimates by the Council of Europe, 2011)).

Roma population taking on an increasing share of the working-age population, these productive losses are expected to increase even further.

**Increasing the educational attainment of Roma and other minorities in Serbia will require concerted efforts by policymakers and school actors.** The barriers to accessing and remaining enrolled in school for Roma are multidimensional, including lack of documentation, financial constraints, parents' low educational background, child labor, language barriers, and discrimination from teachers and pupils.<sup>14</sup> The Government of Serbia has taken concerted efforts to ensure equal access, which is guaranteed under national law. For example, the MoESTD coordinates the Roma Teaching Assistant (RTA) Program, which ensures that one Roma assistant per beneficiary school participates in regular lessons where they provide additional remedial assistance for Roma pupils who have difficulties following lessons. RTAs organize additional lessons, help students with homework, and visit their parents once per week.<sup>15</sup> This program was found to increase attendance for Roma students as well as student performance in mathematics and Serbian language for first-grade students.<sup>16</sup> However, additional efforts such as desegregation policies, remedial approaches, and affirmative action policies are needed to ensure learning for all in Serbia.

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<sup>14</sup> Open Society Institute (2008). International Comparative Data Set. Technical Report, Open Society Foundation.

<sup>15</sup> Battaglia, M. & Lebedinski, L. (2015). Equal Access to Education: An Evaluation of the Roma Teaching Assistant Program in Serbia. *World Development*. 76: 62-81.

<sup>16</sup> Ibid.



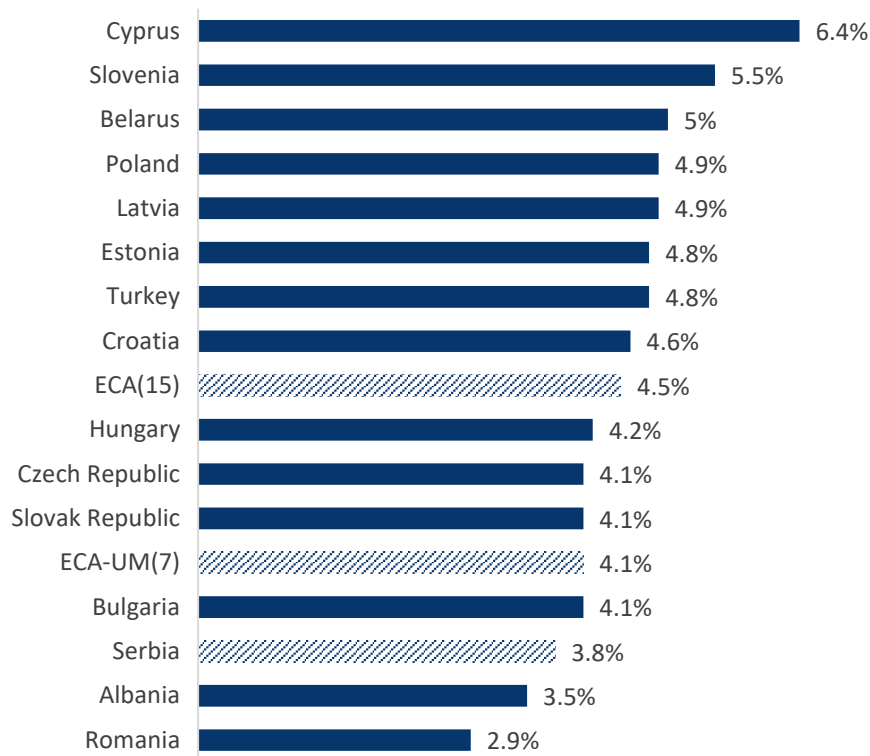
## CHAPTER 2. RESOURCE MOBILIZATION AND UTILIZATION IN EDUCATION

**After examining the outcomes of the education system and the barriers that exist for improving quality, it is important to assess the resources that Serbia contributes to the system.** In particular, this requires an analysis of both the *level* of resources that Serbia dedicates to education, as well as the *distribution* of those resources. Research from Serbia and other countries has shown that the overall level of expenditure on the education system is related to outcomes, but the distribution of spending—how resources are used—matters even more, especially in terms of explaining disparities in outcomes.

### Education Expenditure

**Serbia's public expenditure on education is comparable to that of other ECA upper middle income countries.** As shown in Figure 12 below, Serbia spends 4.2 percent of its gross domestic product (GDP) on the education sector. This is comparable to other upper middle income countries in the ECA region, and is higher than education spending in some new EU member states, including Romania and Bulgaria. However, Figure 4 above (showing the relationship between PISA 2012 mathematics performance and per-student public expenditure on education) indicates that countries which spend greater shares of GDP on education also have stronger student achievement results. This is the case for countries such as Estonia, Poland, and Slovenia. It is unclear whether Serbia's current level of spending is sufficient. However, the fact that higher-performing countries dedicate more resources to education suggests that cutting resources from Serbia's education sector would imperil opportunities to improve quality and ensure learning for all.

**Figure 12. Serbia and Comparator. Government expenditure on education as % of GDP**



Source: UIS (2017)

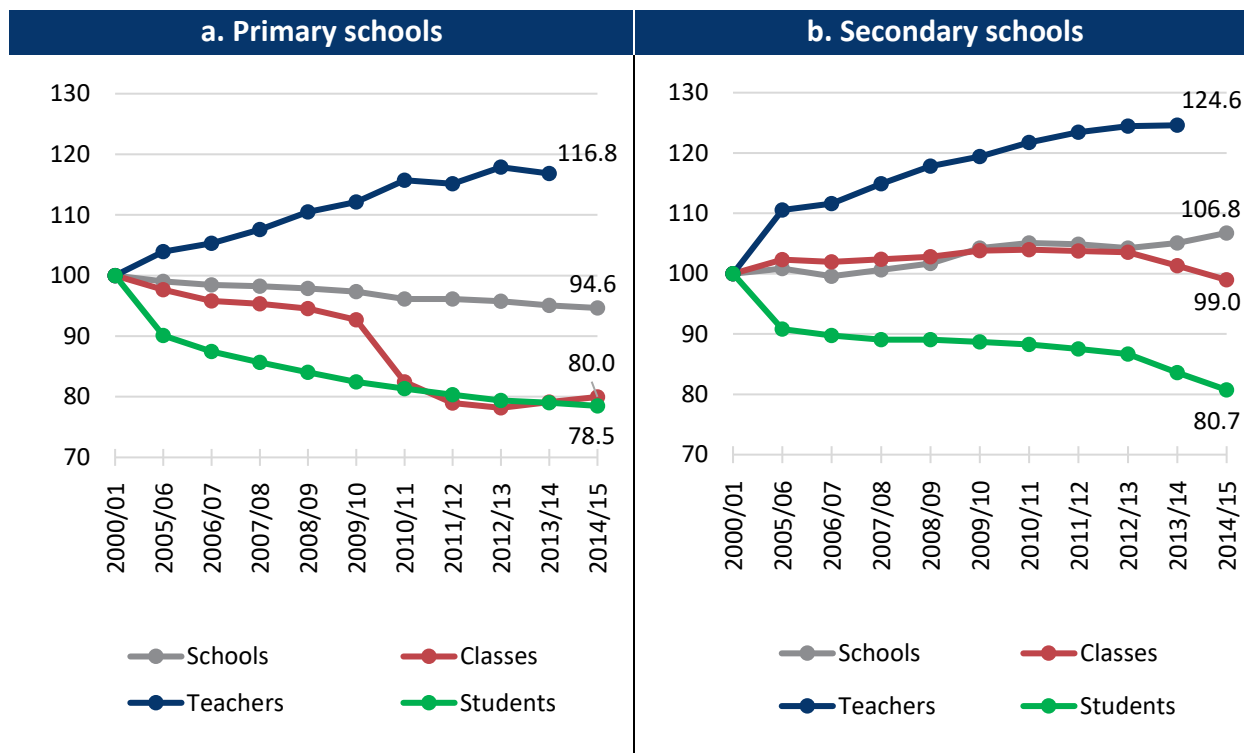
**While the efficiency of spending in the education sector can be improved, achieving learning for all in Serbia requires that savings from efficiency gains be reinvested in the sector.** As previously mentioned, the distribution and staffing of schools in Serbia has not kept pace with the declining student-age population. This represents a clear opportunity to improve the efficiency of expenditure in the sector, while putting resources towards their most productive use. However, achieving learning for all in Serbia will also require new investments, for example to increase access to preschool education or improve access and retention of minority students in school. Although efficiency gains will help to create fiscal space, these resources will be needed to offset the costs of new investments that are essential for improving the quality of education.

## School Network

**Although the number of students has been declining for years, the number of schools has stagnated, while the number of teachers has increased.** Figure 13 below shows that the network of schools and staffing of the sector have not kept pace with the transition in enrollment over the last 15 years. This suggests that a large amount of resources are being used to maintain a school network—including many small schools—that no longer matches the students it serves. As of 2014, over half of the primary schools in Serbia had fewer than

50 students enrolled. Although Serbia's spending on education is comparable to other countries, maintaining this school network plus an increasing number of teachers has caused resources to be stretched thinly, leaving little room for additional needed investments.

**Figure 13. Evolution of School Network, 2000/01 to 2014/15**

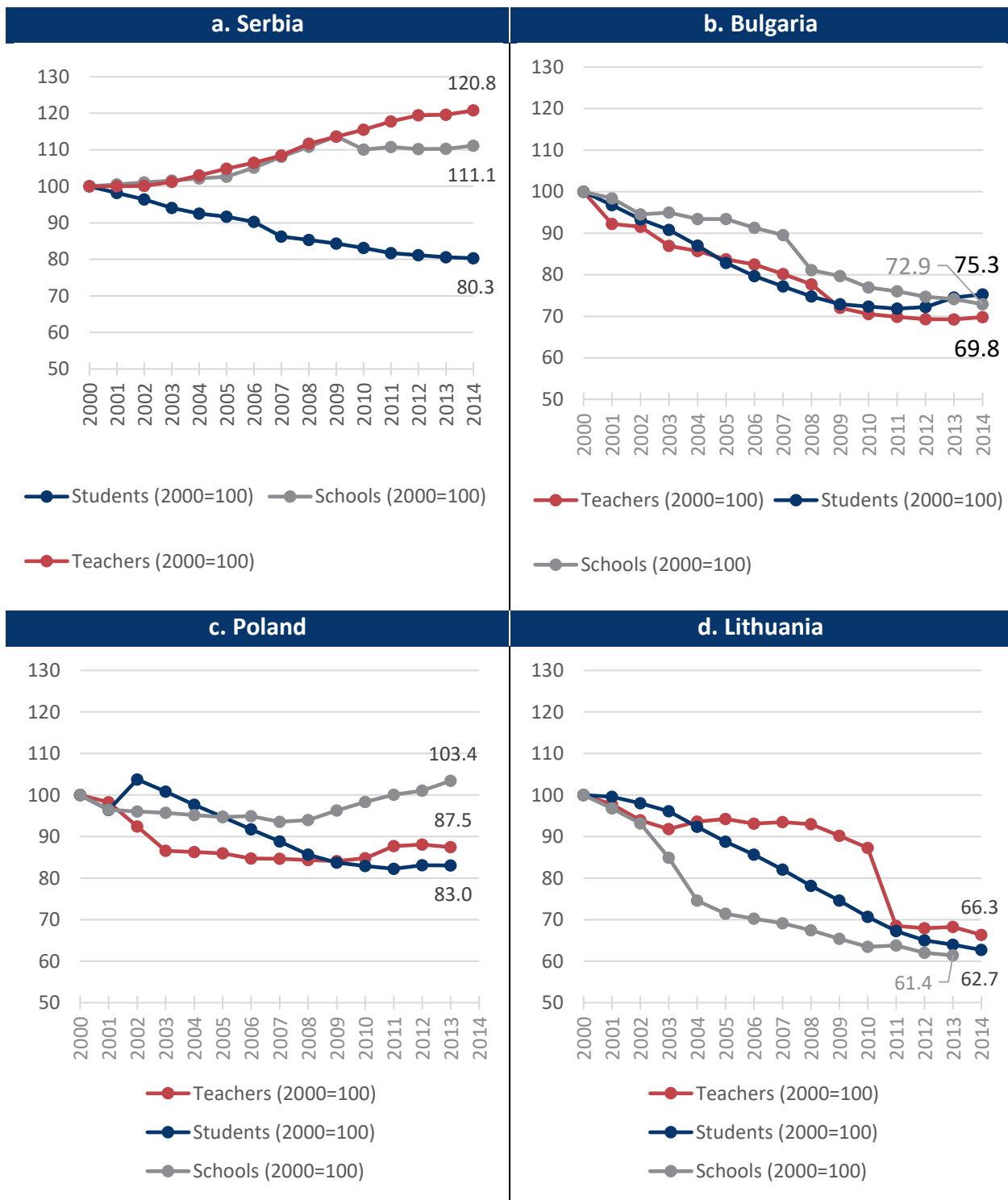


Note: Data are presented as index numbers. Each value represents the magnitude of change compared to the baseline (year = 2000/01). When 100 is subtracted from each value, it provides the percentage change.

Source: World Bank authors based on data from the Statistical Office of the Republic of Serbia

**Other countries in ECA have undergone a similar demographic transition, but have managed to adjust their school network and staffing accordingly.** Figure 14 below shows that the number of students has declined in Serbia as well as other countries in the region, including Bulgaria, Poland, and Lithuania. However, these comparator countries have taken steps along the way—including the introduction of per capita formulas for financing schools—to create incentives for school network optimization in alignment with declining student enrollment. Although countries have chosen to introduce per capita financing for different reasons, including to encourage the optimization of school networks through consolidation of schools and classes and right-sizing of staffing, many transition countries of Central and Eastern Europe have done this since 2000.

Figure 14. Evolution of Students, Schools, and Teacher in ECA Countries (2000-2014)



**Failing to adjust the school network to declining enrollments has resulted in many small schools, which are under-resourced and inequitable.** Previous analysis in Serbia found that students in small schools—schools with fewer than 400 students enrolled—consistently perform worse on the 8<sup>th</sup> grade examination for both the Serbian language and mathematics than students in large schools, even after controlling for students’ socioeconomic



background. Even in urban areas, the gap in performance of 8<sup>th</sup> grade students between large urban schools and small urban schools was remarkably large—about 66 points on the standardized exam scale, or approximately 1.5 standard deviations. Even though financial resources were found to be disproportionately targeted towards small and rural schools, these resources did little to counteract the advantage enjoyed by large schools, especially those in urban areas.<sup>17</sup> This shows how the distribution of resources over many small schools can magnify initial inequalities, such as those in socioeconomic status and access to preschool education.

**The MoESTD has taken steps to optimize the school network without impeding access or jeopardizing quality, but more work could be done.** The MoESTD has taken steps to bring the number of schools and classes in line with the number of students. It has issued minimum class size standards for primary schools with more than one class of the same grade.<sup>18</sup> It has also required LSGs to consolidate schools with fewer than 400 students. The Government of Serbia also proposed an introduction of per capita financing, but implementation challenges hampered its rollout. A detailed assessment of Serbia's school network and the potential scope and feasibility of network optimization is currently underway. Similar analyses have been conducted for the city of Belgrade, which represents a large share of the country's school network. The ongoing school network optimization feasibility study will assess the scope for optimization in both primary and secondary schools and the potential for generating savings from optimization. However, the study is also assessing the network while noting the need to expand access to preschool education. Anecdotal evidence suggests that there is scope to retrofit primary schools to serve as preschools, but the full feasibility study will provide up-to-date evidence on the scope for this.

## Staffing in the Education Sector

**The education sector is unique, being highly labor-intensive and requiring a large number of qualified educators and other professionals.** It has the mandate to serve 8 official minority groups. Staffing levels are largely determined by curriculum requirements and various regulations on norms and standards (e.g., maximum class size). As a result, attrition has a different impact in the education sector compared to other sectors. For instance, once a teacher retires, a new one has to be hired if others in the school cannot pick up the workload (classes) left. Also, changes that affect staff in the education system can be applied mostly during summer times when classes are off to avoid interruptions in service delivery.

**Although staff compensation represents a large share of education expenditures in all countries, it consumes an especially large share of total education expenditure in Serbia,**

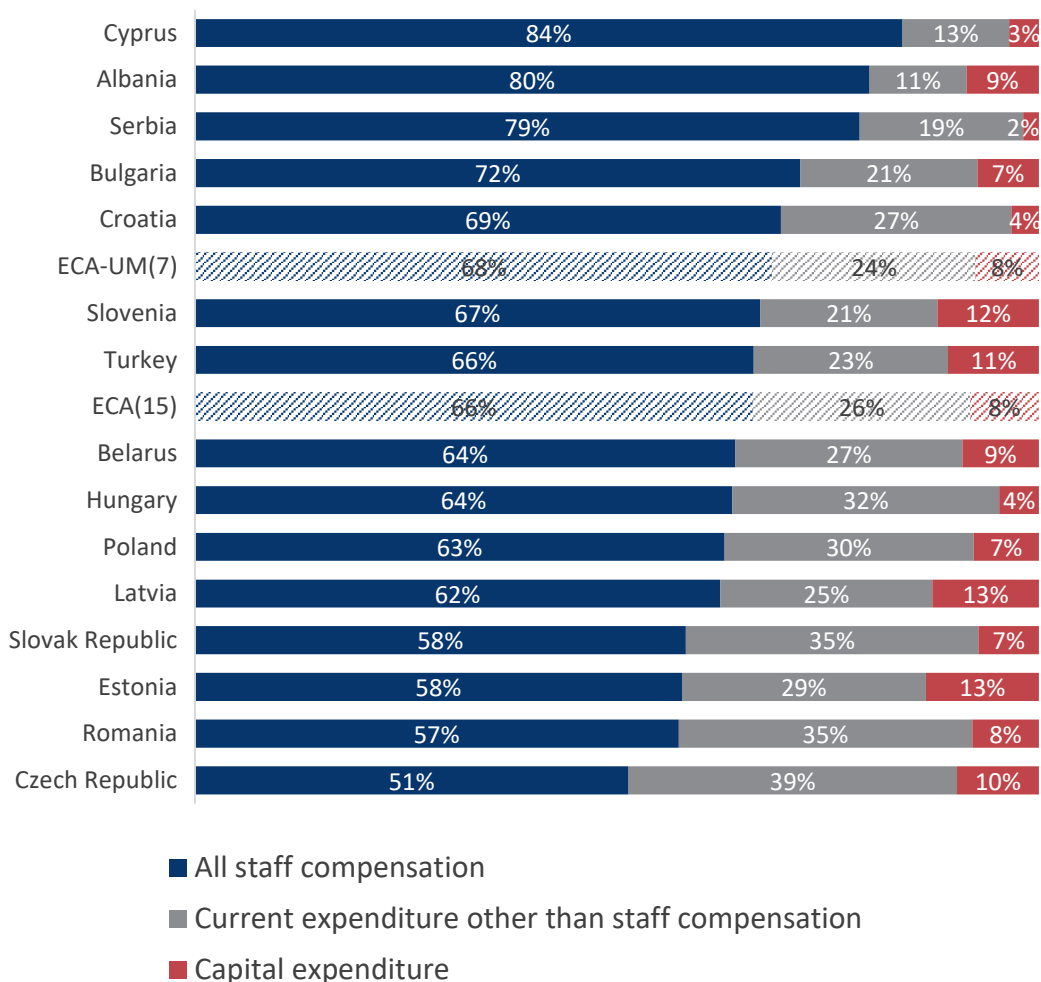
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<sup>17</sup> World Bank (2012). School Spending and Student Performance: BOOST Analysis of Resources Allocation in Serbian Primary Education.

<sup>18</sup> World Bank (2010). Serbia: Right-Sizing the Government Wage Bill. Report No. 54056-YF.

**leaving little room for other investments.** More than 80 percent of total education expenditure goes to finance salaries in Serbia, compared with 68 percent for the ECA upper middle income countries, 63 percent in Poland and 58 percent in Estonia (see Figure 15 below). When looking only at Serbia’s education budget, the figures are even starker, with over 90 percent allocated for salaries and compensation. At the same time, teachers’ salaries remain low, suggesting that resources in the sector are, and have been, spread too thin for many years. This allocation of resources seriously limits the remaining fiscal space available for materials, equipment, infrastructure, or other investments that could support teaching and learning. Furthermore, this creates a strong imperative in Serbia to ensure that human resources in the education sector are effective and are utilized efficiently.

**Figure 15. Expenditure by Nature as % of Total Government Expenditure in Public Institutions**



Source: UIS (2017)

**Serbia has a disproportionately high share of part-time teachers in relation to other ECA and EU countries, with potentially negative implications for the quality of education.** Based on data from Eurostat, over 50 percent of lower secondary education teachers and 38 percent

of upper secondary education teachers are working on a part-time basis (see Table 2 below). This is significantly higher than the ECA and EU averages for both lower and upper secondary education.

**Table 2. Part-Time Teachers as % of All Teachers, by Education Level**

Country/Region	Preprimary	Primary	Lower Secondary	Upper secondary	Income classification
Bulgaria	0.0	0.5	4.1	5.4	upper-middle-income
Slovak Republic	0.1	14.8	16.4	22.8	high-income
Romania	0.9	1.5	19.9	10.3	upper-middle-income
Croatia	1.8	6.6	33.1	54.6	high-income
Hungary	2.5	4.2	12.5	22.0	high-income
<b>Serbia</b>	<b>2.6</b>	<b>7.0</b>	<b>53.2</b>	<b>38.4</b>	upper-middle-income
Slovenia	4.9	3.1	11.0	22.5	high-income
<b>Europe and Central Asia (11)</b>	5.7	11.3	22.9	27.5	
Cyprus	6.6	2.6	3.6	4.8	high-income
Latvia	7.8	25.8	25.8	29.4	high-income
Estonia	16.4	36.0	40.4	53.0	high-income
<b>European Union (28)</b>	<b>18.9</b>	<b>19.7</b>	<b>22.9</b>	<b>26.9</b>	
Poland	19.1	21.9	31.4	39.1	high-income

Source: Eurostat (2017)

**The large number of part-time workers in the school system requires the use of *full-time equivalent (FTE) staff calculations.*** A large number of part-time workers in the workforce means that the total number of persons (headcount) accurately represents the size of the workforce only in some scenarios. For example, the total number of teachers, irrespective of whether they are full-time or part-time, is needed to calculate the ratio of teachers to administrators, because the amount of work an administrator has with respect to a teacher is not influenced by the number of hours a teacher works. On the other hand, the ratio of students to teachers or classes to teachers cannot be calculated on the basis of a headcount if many teachers do not work full time, as is the case in Serbia. In this case it is necessary to analyze staffing using FTE measures, which are based on each employee's hours of service.

**Table 3. Number of Staff in Each Occupational Category by size and status of appointment**

	Full-time	Part-time	FTE
<b>Directors</b>			
Permanent	1,267	18	1,276
Temporary	203	10	208
<b>Total</b>	<b>1,470</b>	<b>28</b>	<b>1,484</b>
<b>Teachers</b>			
Permanent	46,072	17,915	54,726
Temporary	9,084	11,231	14,524
<b>Total</b>	<b>55,156</b>	<b>29,146</b>	<b>69,250</b>
<b>Para-educational workers</b>			
Permanent	2,106	1,133	2,653
Temporary	473	658	792
<b>Total</b>	<b>2,579</b>	<b>1,791</b>	<b>3,445</b>
<b>Desk-Bound/Administrative</b>			
Permanent	3,442	1,376	4,107
Temporary	488	492	727
<b>Total</b>	<b>3,930</b>	<b>1,868</b>	<b>4,834</b>
<b>Manual workers</b>			
Permanent	14,268	1,920	15,206
Temporary	2,263	685	2,597
<b>Total</b>	<b>16,531</b>	<b>2,605</b>	<b>17,803</b>
<b>Others</b>			
Permanent	9	5	11
Temporary	3	2	4
<b>Total</b>	<b>12</b>	<b>7</b>	<b>15</b>
<b>Total</b>			
Permanent	67,165	22,367	77,981
Temporary	12,515	13,080	18,853
<b>Total</b>	<b>79,680</b>	<b>35,447</b>	<b>96,833</b>

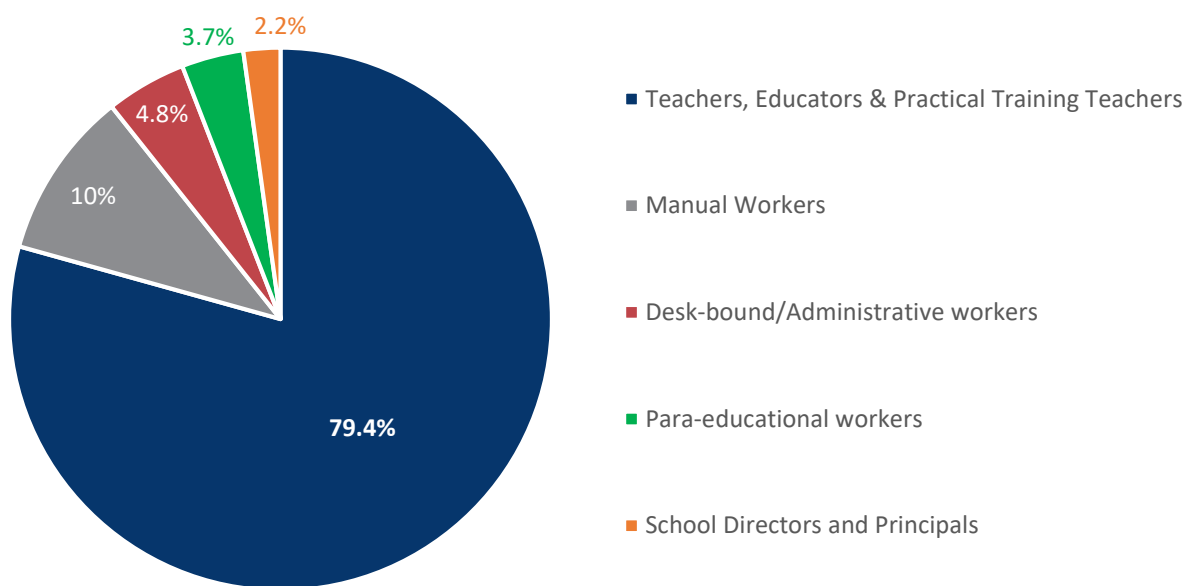
*Note: In order to avoid "double counting" employees who work in two or more schools, the occupational category with its highest individual engagement share has been assigned to each employee.*

*Source: Payroll data (November 2015)*

**In terms of absolute numbers of employees, teachers comprise the largest occupational category within the education sector, with a large share working on a part-time and/or**

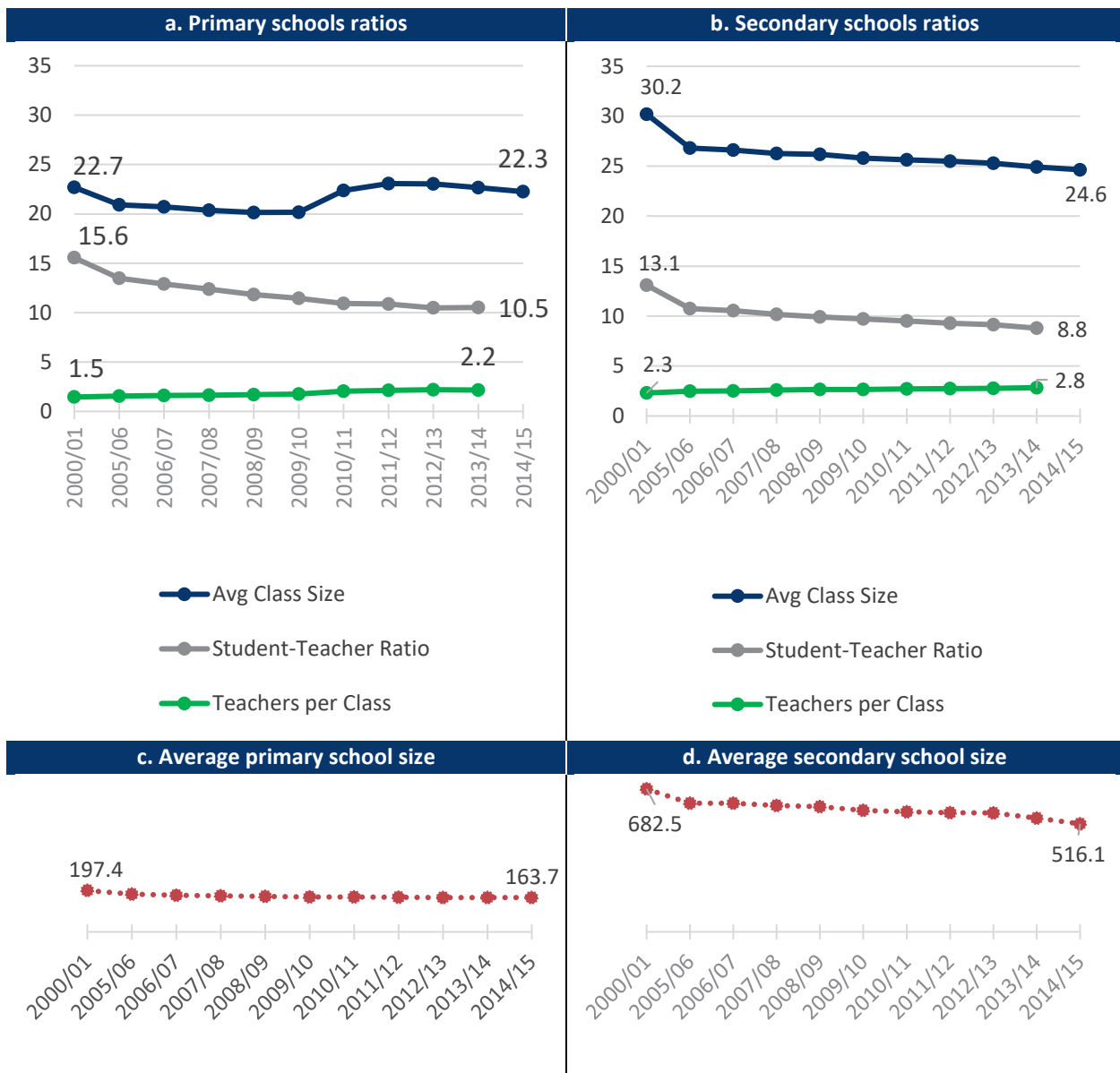
**temporary basis.** The data presented in Table 3 below are derived from the State Treasury’s payroll database from November 2015. This data confirms that part-time teachers represent 35 percent of all teachers on a headcount basis. Furthermore, over 20,000 teachers in Serbia work on a temporary basis, either as full-time or part-time teachers. Hiring freezes seem to have contributed to an increase in teachers entering the education sector through non-competitive processes. School directors have had to rely on temporary staff to meet human resource needs in spite of the hiring freeze. However, non-competitive recruitment of teachers could have a negative effect on education quality if this process continues.

**Figure 16. Distribution of Wage Bill, by Occupational Category**



**In line with the figures shown above, the majority of the wage bill in education goes to teachers’ salaries, followed by salaries for manual workers.** As would be expected, the majority of the MoESTD’s budget—approximately 80 percent—finances salaries for teachers and educators (see Figure 16). Another 6 percent of the budget finances salaries for school directors and para-educational workers, including teaching assistants, pedagogical support staff, librarians, social workers, and other staff who interact directly with students. Manual workers represent the second largest occupational group in terms of salaries—10 percent of the wage bill and nearly 20 percent of FTE employees in the education sector. Manual workers include carpenters, electricians, cooks, maids, drivers, janitors, security officers, and other maintenance staff.

**Figure 17. Student-Teacher Ratios and Class Sizes in Serbia**



**As with the number of schools, the number of teachers has not kept pace with the declining student population, resulting in student-teacher ratios far below EU and OECD averages. At 10.5 students per FTE primary teacher, Serbia falls below two-thirds of OECD member countries and below the OECD average of 15.4 students per teacher. A ratio of 8.8 in secondary schools is also below the OECD average of 13.5. Paradoxically, average class sizes in Serbia are somewhat higher than OECD benchmarks, averaging 23 students in primary school and 25 in secondary school. The figure below also shows that the ratio of teachers to classes in Serbia has increased over time. This paradox points to a fragmented curriculum, accompanied by a high degree of choice between both mandatory and optional elective courses. This is discussed in more detail in the next section.**

**The MoESTD has made concerted efforts to rationalize its workforce and achieve efficiency gains that could be reinvested in the sector.** In line with the government's target of reducing the wage bill, the MoESTD passed a new bylaw<sup>19</sup> in August 2015 on financing of schools that will help to reduce some existing non-teaching staff in schools. However, beyond this, there are limited opportunities to rationalize staffing without negatively impacting the quality of education. Furthermore, reductions in the number of positions mostly take place outside the academic year, during the summer break. As a result, the extent of staff rationalization will be assessed in more detail once payroll data for the 2016-2017 academic year is available.

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<sup>19</sup> The changes in the bylaw on Regulation on Criteria and Standards for Funding Institutions of Primary education.





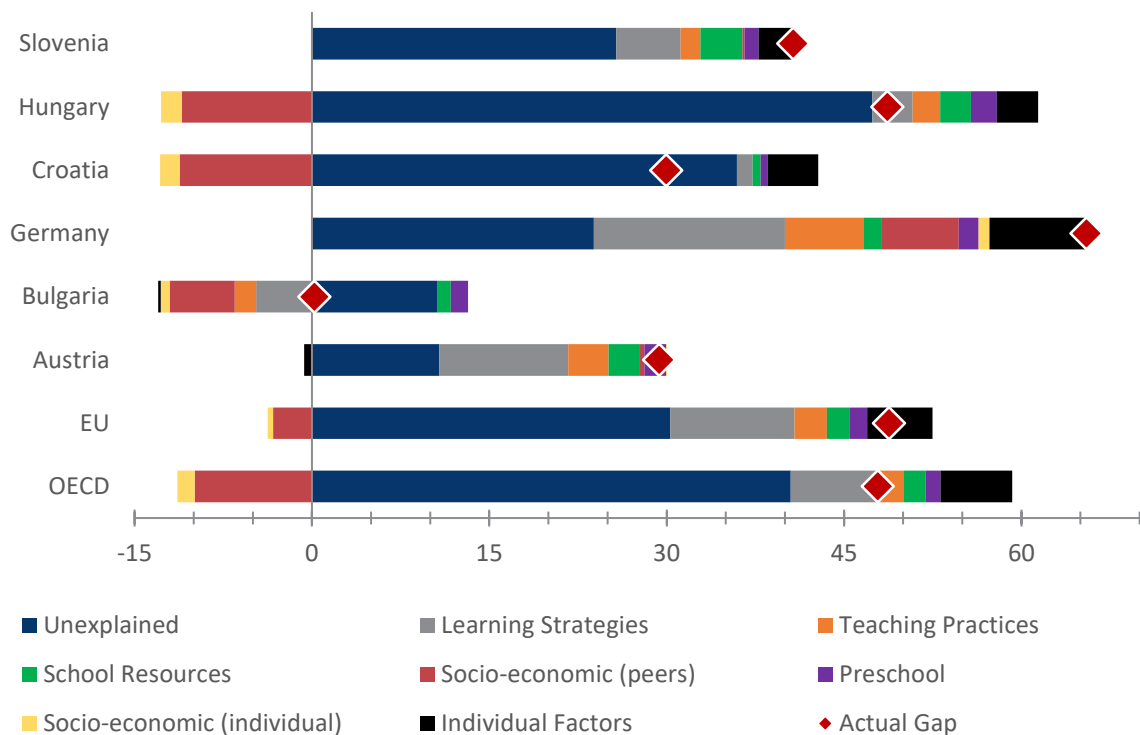
## CHAPTER 3. STAFFING AND TEACHERS' WORKLOAD IN SCHOOLS

**Deficiencies and disparities in student learning outcomes indicate a need to invest in approaches and interventions that will raise proficiency levels overall while also targeting resources to specific sub-populations in order to improve equity.** In the education sector, the vast majority of financial resources are used to employ the staff who work in schools, including teachers as well as administrators, para-educational professionals, and support staff. However, the size of the workforce in school systems—and the nature and scale of the work load expected of teachers and other staff—is driven by multiple interrelated factors, in particular:

- **Number of students:** The number of students is determined in turn by demographic factors such as the birth rate, internal/external migration, and the numbers of school-age children in the system.
- **Organization of the school system:** The organization of the school system, consisting of a large number of norm-based practices which shape the schools' network and influence the number of administrative, technical, and manual jobs in the network. This includes, for example, practices that influence the location of schools relative to the locations of students' homes, school sizes, and the ratios of non-teaching staff to teaching staff.
- **Organization of school instruction:** The organization of instruction in the schools which consists of numerous norm-based practices relating to the delivery of the curriculum, such as class sizes, lesson durations, numbers of subjects a teacher can teach, number of lessons a teacher is required to deliver per week, and types of teaching-related tasks, as well as non-teaching tasks that count as part of a teacher's workload.
- **National curriculum:** The national curriculum, or the national instructional workload, is based on the school curriculum and consists of the total number of lessons that are delivered weekly in all the subjects, programs, classes and schools in the system.

**Cross-country differences in student performance on PISA indicate that teaching practices and learning strategies employed in schools may be key factors contributing to skills gaps in Serbia.** Using data from the 2009 wave of PISA, it is possible to analyze the gap between Serbia and other European countries and attribute the gap to various factors. For example, the actual score gap in reading between Serbia and Germany was over 60 points, but a sizeable share of this gap can be attributed to differences in teaching practices and learning strategies that are used in Germany compared with Serbia (see Figure 18). Learning strategies encompass concepts such as the use of control, memorization, and elaboration strategies in reading. Teaching practices encompass instructional techniques and methods that teachers use in the classroom. This indicates that the allocation and utilization of teachers' time, both in class and out of class, are important dimensions for further analysis.

**Figure 18. Attributing the Reading Gap between Serbia and Comparator Countries (PISA 2009)**

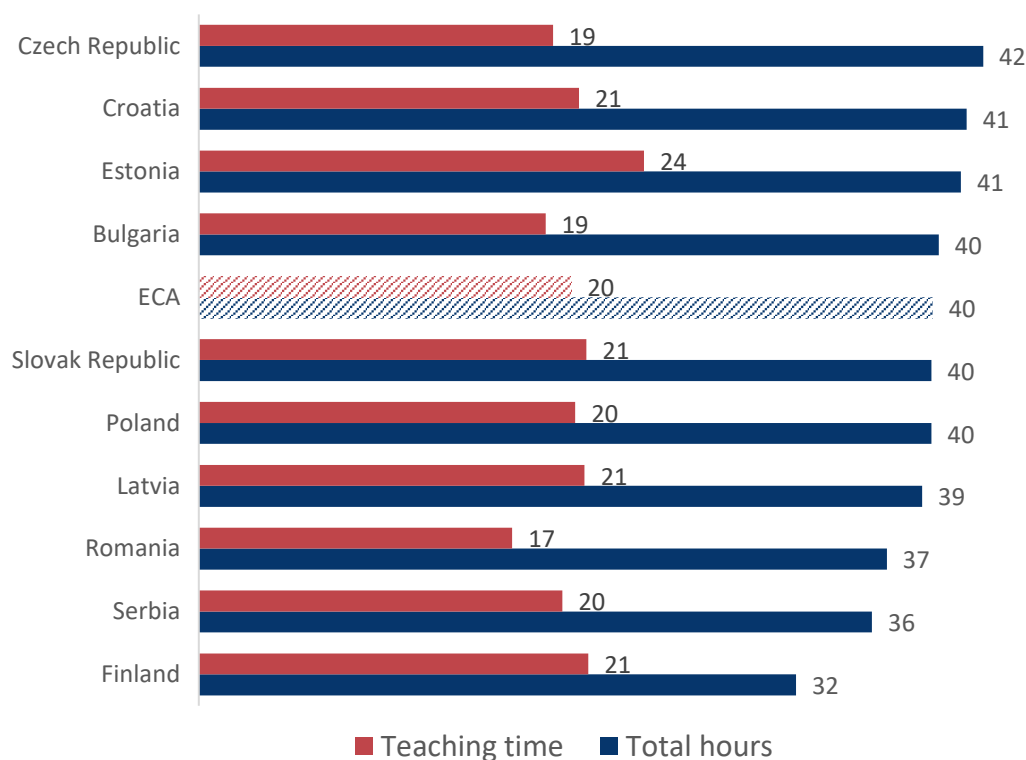


**Teachers in Serbia work fewer hours per week, in total, compared with neighboring countries, although time spent teaching is similar.** The OECD's Teaching and Learning International Survey (TALIS) from 2013, focused primarily on lower secondary education teachers, provides a valuable source of international data on teachers' workloads and how they allocate time between tasks. This is a key dimension of service delivery in education. Figure 19 below shows that in Serbia, full-time teachers work 36 hours per week on average, compared with the ECA average of 40 hours. However, the teaching time of 20 hours per week is equivalent to the ECA average and very similar to neighboring countries. This suggests

that teachers in Serbia spend less time on non-teaching tasks, such as collaborative teamwork with other teachers, grading students' work, and providing counseling to students.

**Teachers in Serbia also spend less time on teaching and pedagogical tasks compared with high-performing education systems.** In Serbia, lower secondary education teachers spend less than half (43 percent) of their time actually teaching (see Figure 20). This is consistent with the average for both ECA countries and TALIS participating countries. However, teachers also must spend time planning and preparing for lessons, coordinating and collaborating with other teachers in their school, and marking student work. Teachers in Serbia report that they spend approximately one-quarter of their time on other non-instructional tasks, including counseling, school management, communication with parents, and engagement in extracurricular activities. This is roughly equivalent to the ECA average, although higher than in high-performing countries such as Estonia (21 percent) and Finland (15 percent). Teachers' participation in non-instructional tasks such as counseling and extracurricular activities is important to promoting a positive school climate, but this may indicate a need to review how teachers use their time and explore options to enhance the time available for the instructional and pedagogical core of their work.

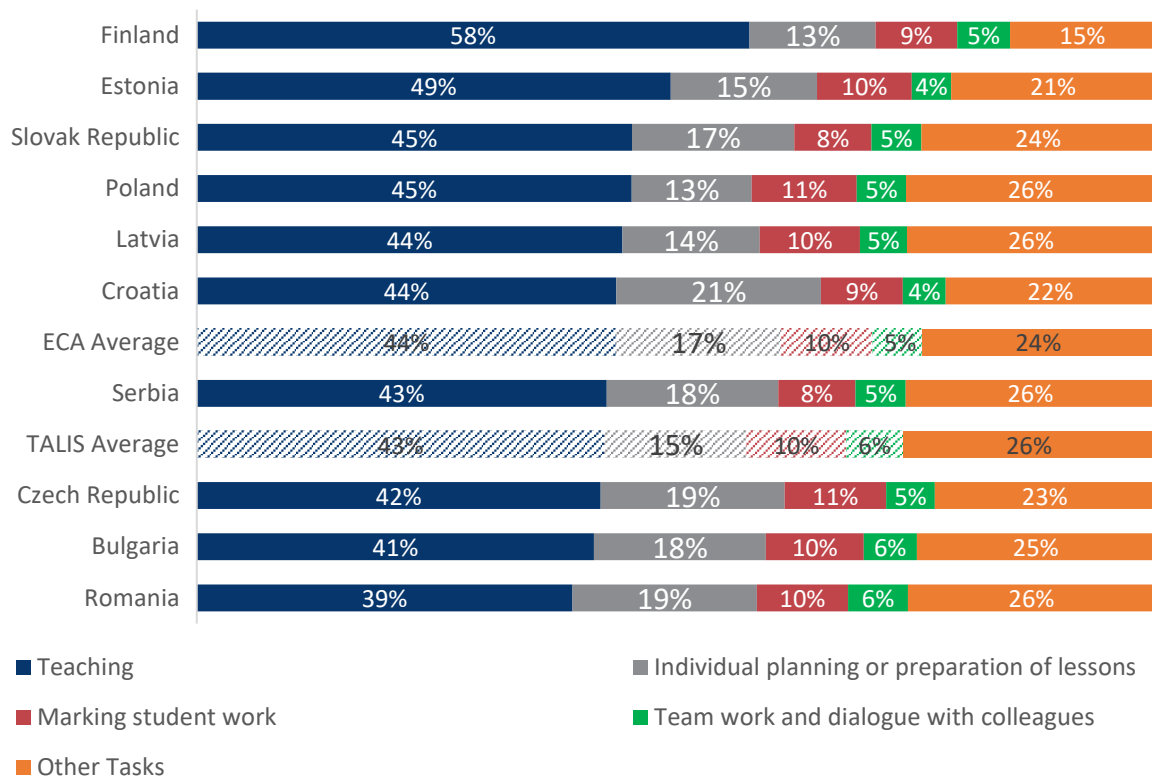
**Figure 19. Total Working Hours and Teaching Time per Week (Full-Time Teachers)**



*Note: Total working hours include tasks that took place during weekends, evenings or other off-classroom hours.*

*Source: TALIS 2013*

**Figure 20. Hours Spent in Teaching, Pedagogical, and Other Tasks by Full-Time Teachers**



*Note: Other tasks include student counselling, participation in school management, communication with parents, engaging in extracurricular activities, and general administrative work.*

*Source: TALIS 2013*

**Some school directors and management staff in Serbia note a large and growing workload that is out of alignment with staffing norms and rules.** In-depth interviews were conducted with school directors and staff to better understand the workload within Serbian schools and identify opportunities to enhance utilization and efficiency of staff. Three primary schools and two upper secondary VET schools participated in detailed qualitative interviews in support of this work. Though not representative of the school system as a whole, these interviews yielded many common findings, suggesting that they do reflect widely held perspectives. School directors and management staff strongly agreed that the administrative workload in their schools has grown relentless in recent years, while there has also been a strong pressure to reduce the number of administrative and other staff in their schools. Directors noted that the norms that determine the number of administrative and other staff they have is large, and the rules associated with these norms (including exceptions) are complex. Finally, school directors agree that there was little or no consultation with schools regarding the norms and the extent to which they accurately reflect the validity of the norms. All interview participants agreed that many of the norms indeed do not reflect the real workload within schools.

**School visits also yielded relevant information on the types of factors that contribute to high workloads within schools, while also limiting the ability of schools to enhance utilization and efficiency of staff.** These factors also limit the potential for consolidating staffing in these work areas. These factors are grouped into three categories, described in the subsequent paragraphs: (i) inadequate norms, (ii) inefficient work allocation practices, and (iii) weak control over work allocation processes.

## Staffing Norms

**The norms for many jobs in Serbian schools, including school director, deputy director, and school secretary all appear to underestimate the time needed to perform their tasks well.** Norms for the deployment of people are inadequate when: (a) based on indicators that do not reflect well the volume of work to be carried out by these people; (b) they reflect the work adequately, but not the time that is needed to perform it; or (c) there are too many, too broad, or too vague exceptions. The number of classes serves as the norm for a large number of jobs. Among others, it serves as the norm for all administrative jobs in schools, even though it does not reflect well the volume of work that these job-holders have to perform. The staffing norms for deputy directors and secretaries appear to be underestimated in terms of required time, since these employees are supposed not only to do their distinct jobs but also to help the school directors in their academic and administrative jobs. From the evidence gathered thus far, it seems that these norms under-estimate the time that school directors need to perform all of their tasks well, and how much help they need to receive from their deputy directors on academic matters and from their school secretaries on administrative matters. Equally, these norms underestimate the time secretaries need to do their jobs and assist the directors. All school directors, one deputy director, and five of six secretaries interviewed indicated that they regularly take work home and they often come to school on Saturdays to work.

**An example of inadequate staffing norms due to the use of many or broad exceptions may be the norm regarding the numbers of students required to open up a class for an elective subject.** The norm requires 15 students, but has an exception for small schools that allows them to open up such a class with fewer students. With 16 different electives in Grades 1 to 8, and more than 2,300 small primary schools with fewer than 76 students, this exception seems to be an opening for a very large number of elective classes with far fewer students than allowed by the norm. The opening exists, but whether this is true is unknown because there is no control over the granting of this exception by regional offices to the schools (discussed in more detail below). This data is not being collected and reported to the MoESTD.

## Work Allocation Practices in Schools

The current system of allocating work in schools, based largely on the number of classes, creates incentives to open and maintain more classes than are necessary. At the beginning of each year, school directors automatically receive a total annual allocation of approved work hours for their schools from the system, based on the number of classes. School directors then divide the total number of hours among their staff, selecting teaching subjects and teaching-related activities for each teacher from lists of mandatory subjects and teaching-related activities. In primary schools, the list of electives includes 16 subjects, and the list of activities includes 24 activities, including “direct work with students” and “other teachers’ activities” (see Table 4 below). Altogether, school directors have 24 different types of activities which they can allocate to teachers, adding hours to their teachers’ weekly workload until it reaches the required full-time load of 40 hours. The more classes a school director can organize, the more hours of work s/he receives, and the more non-mandatory activities from both lists the director can create and then allocate to teachers to ensure that they have full-time employment. This work allocation system provides a strong incentive to open more classes, receive a greater allocation of work-hours, and then create more full-time jobs, than may be absolutely necessary. This also may create social pressures within the school, where teachers compete to fill their time, and good teachers or those in scarce fields are offered extra activities as an incentive to continue working in a given school.

**Table 4. Activities Comprising Teachers’ Workload**

Direct work with students	Other teachers’ activities	
Class teacher work with students	Preparation of instruction	Mentoring
Additional instruction	Correcting of written tests	Trainee
Optional instruction	Make-up and class examinations	Substitute teaching
Groups/Clubs	School leaving and final examinations	Duty
Sports activities	Class teacher activity	Enrolment
Supplementary instruction	Chairing of expert councils	Other activities by director’s order
Cultural activities	Laboratory organization	
Preparation for competitions	Professional organization	
Socially useful work	Professional improvement	

## Control over Work Allocation Process in Schools

There is little or no monitoring of how schools choose to allocate hours among staff, which may perpetuate inefficiencies throughout the education system. After the school director is allocated his/her respective number of hours, each school director decides how to allocate

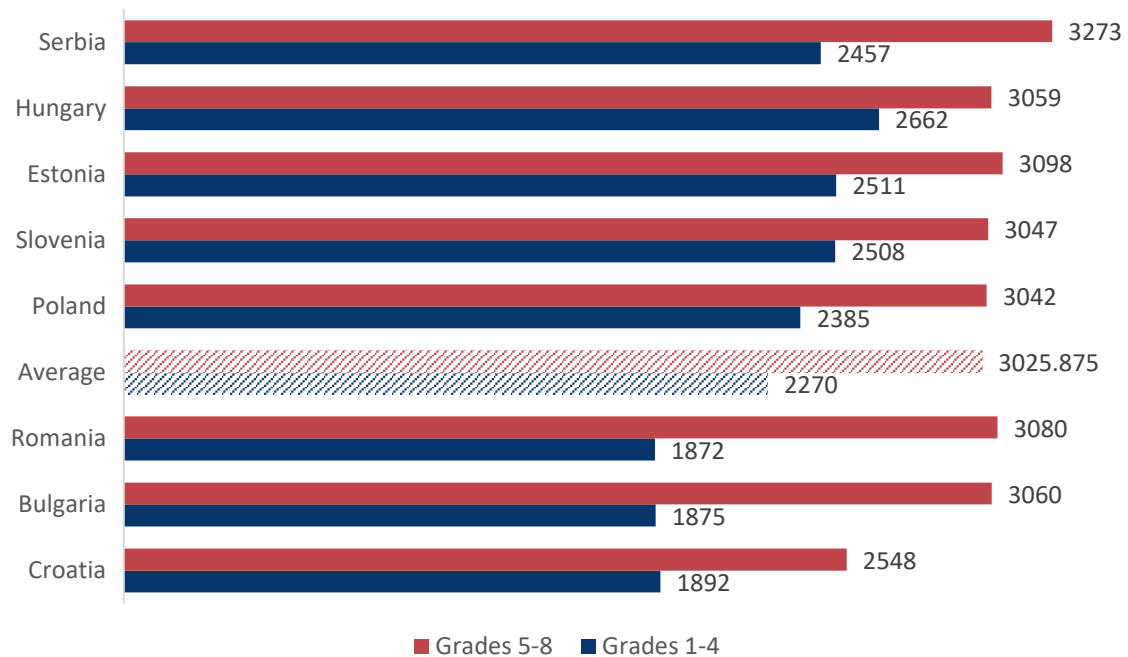
the work and then enters into a formal agreement with each staff member. The agreement specifies how many hours a week each staff member will work, and the tasks to be performed. The details of the agreement are entered into a form called Protocol 1890/62 Decision Determining the Status, Structure and Distribution of Teachers' Obligations and the form is filed in the staff member's personnel file at the school. However, the information contained in these papers is not reported back to the MoESTD, the State Treasury, or any other government agency, and is not kept in any central database. As indicated above, directors allocate hours on the basis of existing norms, as well as a large number of permitted exceptions to the norms. The use of exceptions may require approval at the regional office, but once approvals are given, they too are not recorded at that level nor are they reported to the MoESTD.

**This means that MoESTD cannot adequately control the number of teachers in the education system.** The MoESTD currently lacks information on the cost of conducting each of the 24 types of activities, and how many teachers are teaching a given elective course, and therefore how much it costs the system to maintain an elective in the curriculum. The MoESTD also lacks information on whether too many teacher-hours are dedicated to non-instructional activities. As a result, the Ministry is unable to observe trends in these areas, identify issues, and direct a change of course or action, if necessary. Given the important role that teachers play in influencing students' opportunities to learn, and the large share of education expenditure that teachers' salaries represent, the lack of control and oversight over resource allocation represents a major challenge to improving service delivery in education.

## Curriculum

**Teachers' workload must also be put into context in relation to the required curriculum for a given level of education.** In Serbia, there is some anecdotal evidence that curricula and course offerings in primary and secondary education are expansive, with large numbers of mandatory and elective requirements as well as optional courses. For example, for Grades 5-8 in primary schools, students are required to choose between civic education and religious education as a first mandatory elective. They also must choose a second mandatory elective from between 10 choices: mother tongue language/culture, foreign language, ecology, physical education, informatics/computing, ecology, chess, art, choir/orchestra, "everyday life in the past," and household work. Offering this number of electives in addition to the mandatory non-elective curricula impacts the workload and time allocation of teachers.

**Figure 21. Recommended Minimum Annual Instruction Time in Full-Time Compulsory General Education (Grades 1-8, Hours)**



*Note: Full-time compulsory general education in Serbia (and Croatia) last for 8 years, so Grades 1-8 represent the full compulsory cycle. For Bulgaria, Estonia, Slovenia, and Poland, the cycle is 9 years compared with 10 years for Hungary and 11 years for Romania.*

*Source: EC/Eurydice (2016). Recommended Annual Instruction Time in Full-Time Compulsory Education in Europe 2015/16. Eurydice – Facts and Figures. Luxembourg: Publications Office of the EU.*

**Based on the compulsory curriculum for Grades 1-8, Serbia’s minimum recommended instruction time exceeds the average for neighboring countries.** The European Commission produced an analysis of recommended annual instructional time in European countries based on full-time compulsory general education. This analysis identifies the notional workload for students, in terms of compulsory instructional time per year, according to regulations or standards identified by central education authorities. Based on the intended curriculum required by the MoESTD, students in Serbia should have approximately 2,450 hours of instruction in Grades 1-4 to meet the compulsory curriculum requirements, compared with the average of 2,270 hours from neighboring countries (see Figure 21). In total, for Grades 1-8, Serbian students are expected to receive 5,730 hours of instruction which is considerably higher than the average of approximately 5,300. It is unclear from this analysis whether students in Serbia actually receive this amount of instruction. Even so, this indicates that Serbia’s need for teachers and other instructional staff may be greater than in other countries due to more demanding curricula.

**In Grades 1-4, Serbia’s curriculum puts more emphasis on mathematics, natural sciences, foreign languages, and compulsory subjects to be chosen by students than neighboring countries.** For mathematics, Serbia’s curriculum requires a minimum instruction time of 540



hours over four years, compared with 420 in Croatia and 380 in Estonia. Serbia also requires students in Grades 1-4 to choose between compulsory options, whereas countries like Estonia and Hungary allow schools rather than students to choose compulsory flexible subjects. On the other hand, Serbia's curriculum focuses less on reading and writing in Grades 1-4, with a minimum instruction time of 540 hours over four years compared with 630 in Estonia, 660 in Slovenia, and 740 in Hungary. Curricular differences between subjects in Serbia limit the extent to which schools can respond to local conditions and reallocate teachers to different classes.



## CHAPTER 4. RECOMMENDATIONS FOR IMPROVING QUALITY

**Serbia’s education system is converging with other countries in ECA and the EU, but there is a need to eliminate barriers to access while ensuring that all students have the opportunity to acquire a high-quality education.** The findings of the Education Functional Review highlight several major barriers to ensuring learning for all in Serbia, specifically low and inequitable access to preschool education, a high share of youth with insufficient basic skills, a misalignment of supply and demand around upper secondary education, and social exclusion of minorities. At the same time, the school system is characterized by a large number of small, under-resourced schools, a large number of teachers (especially part-time teachers) in relation to a declining student population, and a potentially expansive or fragmented curriculum, especially in lower and upper secondary education. Furthermore, instructional and non-instructional day-to-day work in schools—the so-called “technology of schooling”—is inefficiently allocated across teachers, with staffing norms determined according to classes rather than enrollment.

**Though there are no “silver bullets” to achieve efficiency gains or enhance quality, this analysis does point to several promising options for reform.** The recommendations below are derived from this analysis, with a particular focus on options for improving quality of the system and ultimately student learning outcomes. These options all require additional analysis and strategic thinking on implementation and sequencing over the medium and long term.

### Preschool Education

**Increase coverage of preschool education while making use of existing primary school facilities, where available.** It is particularly important to focus on expanding coverage for

children from vulnerable groups, especially those in rural areas, low-income households, and Roma families.

**Adopt the new curriculum for Early Childhood Education and Care.** The new curriculum seeks to adopt a child-centered approach to preschool education, in line with OECD best practices. Preschool education, through a holistic approach, will focus on “learning by playing” that will help children to develop socio-emotional skills (like collaboration and communication) and cognitive skills required for the 21st century.

**Prepare guidelines for child-centered architecture and announcing the number of kindergartens to be repurposed.** The guidelines would complement the new curriculum and they would be prepared by the Ministry of Education Science and Technological Development (MoESTD) with the objective to reach a broader audience and include teachers, architects, and local authorities in charge of the architecture. The guidelines would accompany the Terms of Reference for architectural design to influence ongoing and planned preschool infrastructure investments. The architecture could be designed based on the use of open spaces to improve interactions among children, facilitate child-to-child learning, and self-learning.

**Reform the law on universities to allow for changes in ECEC pre-service training.** This action would allow the flow of teachers to learn the same curriculum as their peers who are in-service and avoid creating a dual system (between new incoming teachers, and existing in-service teachers).

## General Education

**Consolidate—where feasible—the school network.** Reducing the number of small schools will help to concentrate resources in fewer schools, which will help to improve quality of instruction and the efficiency of expenditure. The ongoing school network optimization feasibility study and mapping exercise will identify whether and where such opportunities exist.

**Review, modify, and enforce organizational and staffing norms.** This will help to ensure that the number and distribution of teaching and non-teaching staff across schools is aligned with the needs and the enrollment size of the school.

**Improve administrative productivity (streamline procedures) and assess feasibility of consolidating administration in small schools that cannot be consolidated.** Streamlining administrative procedures and reducing the requirements on school directors and teachers will provide them with more time to focus on their core tasks related to instructional leadership and teaching.

**Allocate spending on the basis of student enrollment, rather than classes.** The government has taken action previously to introduce per capita financing reforms, but this was marred by implementation challenges. However, the current method of allocating spending is inefficient and inequitable. Reintroducing an effort to allocate funding for schools on the basis of the number of students, rather than the number of classes, would improve the equity of resource distribution.

**Increase transparency through the dissemination of school report cards.** This particular reform is a small step towards promoting schools' accountability to parents and students regarding learning outcomes. While data on student performance is not available (due to lack of assessments), school report cards could disseminate information related to efficiency (e.g. dropouts, repetition, flow of students, and possibly aggregated at the school level, data on the schools that students will attend after the 8<sup>th</sup> grade examination) as well as inputs (enrollment, teacher characteristics, and the like). Stakeholders could then compare schools across municipalities and regions. In addition, school report cards are a good channel to disseminate information on: (i) the returns to schooling, which can change the perception of benefits of staying in school; (ii) quality of education provided by schools, which may increase competition among schools; and (iii) students' performance, which may increase demand for better services.

**Consolidate VET profiles, programs, and schools.** There is a need to evaluate the relevance and utility of such a large number of VET programs. A very large number of profiles are being taught in VET schools, particularly in the 3-year programs. Some programs may be focused on outdated clusters of subjects that were relevant in the past but much less relevant today. Some of them may no longer fit today's evolving technology and labor market, while others may need to be integrated with other profiles. It is important to determine, through the use of tracer studies, whether and to what extent their graduates are getting employment in the labor market and in what occupational fields.

**Improve teaching practices through enhanced teacher professional development and a realignment of teacher deployment policies.** Gathering more information from teachers on their practices and on their views regarding needs for professional development would help to identify opportunities for improving teaching practices. Research shows that steady, consistent professional development paired with mentoring and opportunities for teachers to collaborate are essential to change teaching practices and ultimately enhance the quality of education.

**Streamline and modernize the curriculum, especially in lower and upper secondary education.** It is very likely that curricular fragmentation has led, over time, to a requirement for a large number of teachers relative to the number of students. Curricular reform would provide an opportunity to modernize the curriculum in line with European and international good practices. However, this process is time-consuming and must be well-integrated with

other systems, particularly pre-service teacher preparation, in-service teacher professional development, and student assessment.

