



ARMENIA

TEACHER PROFILE AND POLICIES

2021

ARMENIA

TEACHER PROFILE
AND POLICIES

APRIL
2021

ARMENIA

**TEACHER PROFILE
AND POLICIES**

© 2021 International Bank for Reconstruction
and Development / The World Bank

1818 H Street NW

Washington DC 20433

Telephone: 202-473-1000

Internet: www.worldbank.org

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

ARMENIA

TEACHER PROFILE AND POLICIES

APRIL
2021

Contents

1

Pag. 15

Introduction and Background

Pag. 16

Purpose and Methodology of this Note

Pag. 17

Background and Context

Pag. 29

Meet Gohar

2

Pag. 31

A Descriptive Analysis of Teachers in Armenia

Pag. 32

Teacher Demographics

Pag. 33

Teachers' Educational Background and Tenure

Pag. 35

Teachers' Professional Development and Training

Pag. 41

Teacher Salary

Pag. 45

Gohar's Path to Teaching

3

Pag. 47

Spotlight on Math and Science Teachers: TIMSS 2015 Analysis

Pag. 48

Educational Profile of Math and Science Teachers

Pag. 49

School Environment: Teaching Expectations, Challenges, and Practices

Pag. 55

Teaching Practices: Collaborations and Relationships

Pag. 60

School Resources

Pag. 64

Teachers' Job Satisfaction and Motivation

Pag. 67

Gohar's Experience with Teaching in Armenia

4

Pag. 69

Recommendations and Considerations for Action

Pag. 70

Challenges, Recommendations, and Actions

Pag. 72

Annex

Pag. 72

References

Pag. 74

List of figures, tables, and boxes

Pag. 76

Annex A.

Determinants of 4th and 9th Grade Math Learning in Armenia: Multilevel Analysis

Pag. 80

Annex B.

Determinants of 4th Grade Math Achievement Among ECA Countries

Pag. 82

Annex C.

Teacher Recruitment: Detailed Summary

Acknowledgments

The work for this analytical note was led by Katia Marina Herrera Sosa and Hanna Katriina Alasuutari. The note was prepared by Isil Oral Savonitto in collaboration with Martin Moreno and Ina Ajazi. The team has greatly benefited from the comments provided by our peer reviewers Samira Halabi and Shobhana So-sale. The team is equally grateful for the insightful suggestions and guidance shared by Harry Anthony Patrinos, Sebastian-A Molineus, Sylvie K. Bossoutrot, Lire Ersado, Alexandria Valerio and Anush Shahverdyan. In addition, the Deputy Minister of Education, Science, Culture and Sports of Armenia Zhanna Andriasyan and her team; the Asian Development Bank; and Teach For Armenia have provided comments and suggestions which were all taken into account while finalizing the note.

Marc DeFrancis edited the main manuscript. Design and typeset of the main report and accompanying materials were implemented by the typesetting firm Puntoaparte.

Abbreviations

AMD	Armenian Dram (currency)	NCEDI	The National Center for Education Development and Innovation
ARMStat	The Republic of Armenia Statistical Committee	NGO	Non-governmental Organization
BA	Bachelor of Arts	NIE	The National Institute of Education
CB	Competency-based	NSS	The National Statistical Service
ECA	European and Central Asia	OECD	The Organization for Economic Co-operation and Development
EU	The European Union	PPP	Purchasing Power Parity
GDP	Gross Domestic Product	SES	Socio-economic Status
HCI	Human Capital Index	ST	Short-term
HLM	Hierarchical Linear Modeling	STEM	Science, Technology, Engineering and Math
ICC	Intraclass Correlation	STEP	The World Bank Skills Measurement Program
ICT	Information and Communication Technologies	TALIS	The Teaching and Learning International Survey
IEA	The International Association for the Evaluation of Educational Achievement	TIMSS	Trends in International Mathematics and Science Study
ILOSTAT	The International Labor Organization Statistics	UIS	The UNESCO Institute for Statistics
KB	Knowledge-based	UNESCO	The United Nations Educational, Scientific, and Cultural Organization
LAYS	Learning-adjusted Years of Schooling	UNICEF	The United Nations International Children's Emergency Fund
LT	Long-term		
MoESCS	The Ministry of Science, Education, Culture, and Sport		
NaCET	The National Center for Education Technology		

Executive Summary

Armenia has made steady progress in reducing poverty in recent years, but development challenges remain, particularly concerning the human development needed to improve the country's labor productivity. Firms face problems in recruiting and retaining workers with the required skills, and they view the lack of workforce skills as a major obstacle to their activities. The inadequate quality of education, specifically related to practical skills and updated knowledge, has emerged as a key challenge. In addition to technical skills, young Armenians lack generic skills, such as those related to problem solving, critical and creative thinking, teamwork, languages, and leadership (Rutkowski, 2013). Consequently, while employers report skill constraints, a large share of the labor force is unemployed or inactive. Alleviating the skill constraints of Armenia's firms is crucial to boosting productivity and competitiveness (World Bank, 2017).

Armenia does not rank as high in the Human Capital Index (HCI) as it could (Figure S-1). The index implies that a child born in Armenia today will be only 58 percent as productive when (s)he grows up as she could be if she enjoyed a complete education and full health. The ranking on the HCI is largely attributable to the challenges with education quality and to inequalities in access to quality education services. The HCI shows that a child who starts school at age 4 in Armenia can formally expect to complete 11.3 years of schooling by the age of 18. Factoring in what children actually learn, however, an analysis of learning outcomes shows that expected years of schooling equate to 8 years. This results in a learning gap of 3.3 years.



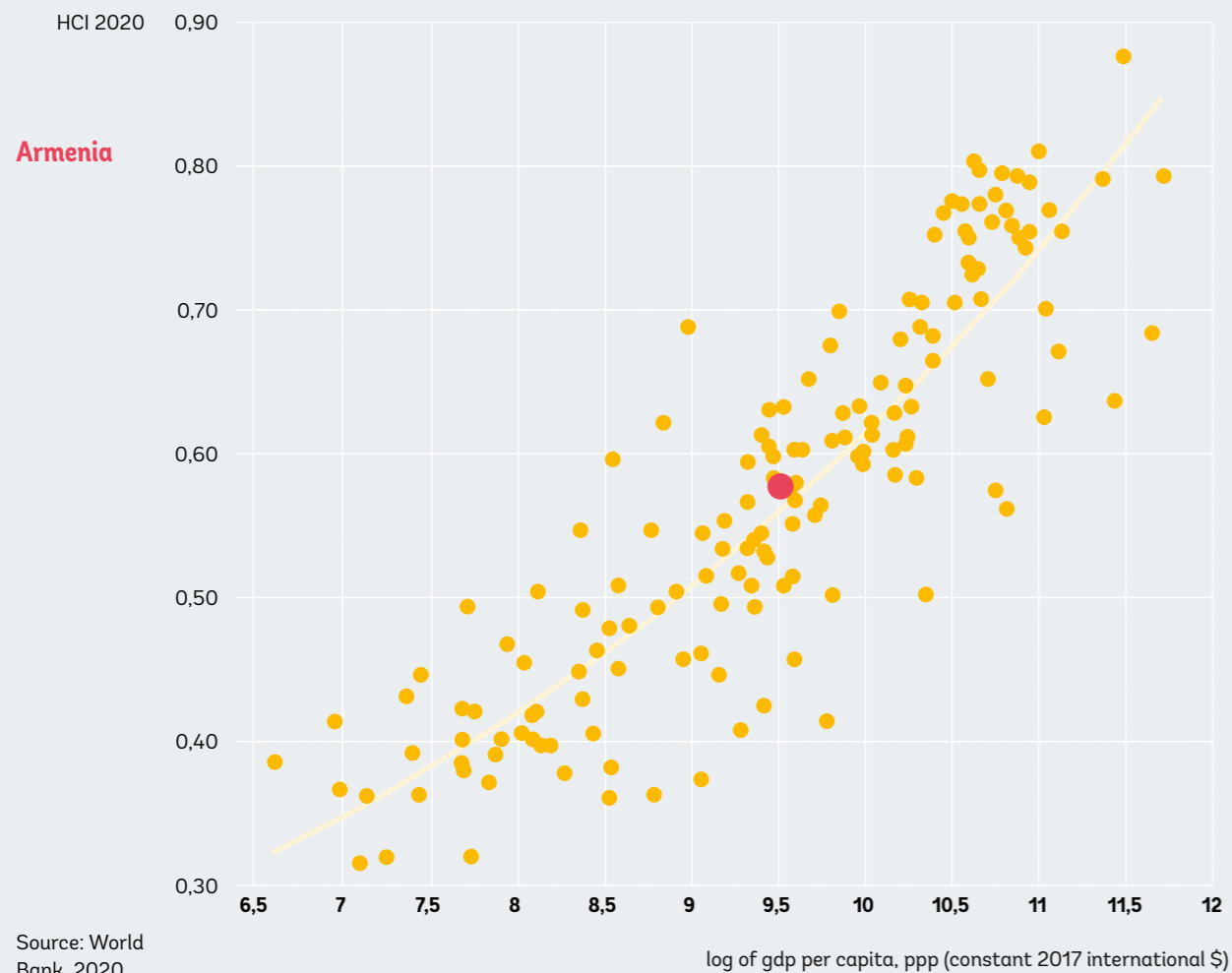
Students from poor families and those from rural and remote areas have higher rates than other students of early dropout from formal education, and they often fail to pursue other training opportunities. Learning gaps pose a significant problem, with implications for the well-being and productivity of individuals for a lifetime. Shortcomings in the quality of learning mean that education is not fulfilling its promise, it is not contributing to poverty

reduction or sustainable growth, and might potentially be contributing to perpetual social and economic inequality.

Despite this weak record of student outcomes, Armenia's education system has a strong foundation coupled with strong institutional capacity, and with the appropriate reforms it has the opportunity to improve those outcomes. Armenia is currently embarking on

an ambitious curriculum reform to provide opportunities for students to reach their full potential and to ensure the social, economic, and political development of the country. However, this comes with its own set of challenges, particularly from the teachers' perspective. As part of these reforms, Armenia is looking to transition from its traditional approach to teaching and learning into a competency-based education system.

Figure 1-1. Where Armenia Ranks in the Human Capital Index (Productivity against GDP per Capita)



Making that transition will be a complex undertaking, because all resources, curricula, and education processes have historically been knowledge-based, teacher-centered, and linear. Competency-based education (i) is critical and conducive to foster 21st century skills, including critical thinking, flexibility, creativity, and collaboration; (ii) requires inquiry-based and student-centered instruction; and (iii) focuses on the outcomes of a learning process (knowledge, skills, and attitudes) rather than on what learners are expected to learn in terms of traditionally defined subject content in a given period of time. Teachers are key to successful implementation of a competency-based curriculum.

A growing body of research indicates that teachers are the most important school-based determinant of student learning. The difference between the impact of a weak teacher and a great teacher on student test

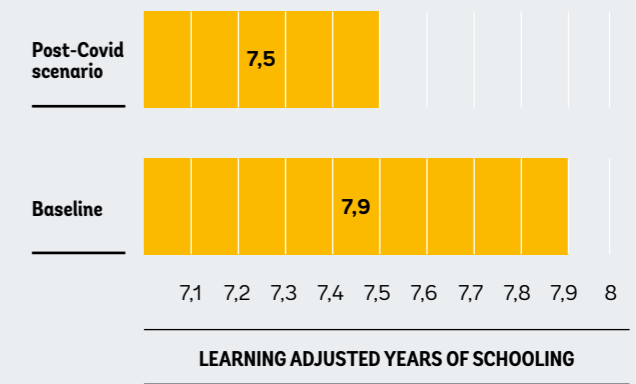
scores has been estimated to be equivalent to more than two years of schooling. Although curriculum reform is key for the implementation of competency-based education, it is not sufficient to help teachers tailor their instructional methods and practices for student-centered approaches. Learning materials such as textbooks, teacher guides, and syllabi that are currently used in Armenia are overloaded with information, and the sequencing of subjects within and between grades and schooling levels needs to be revised. To achieve the transition to a competency-based curriculum, it will be critical to understand how all teachers will need to be—and how they can be—equipped and supported. This note aims to add to the knowledge on how teachers in Armenia teach; what instructional methods and materials they use; how they feel about their profession; what challenges they face; and what their learning/teaching needs are.

The objective of this note is to develop a thorough understanding of the profile and practices of teachers in Armenia and to provide evidence-based, actionable policy recommendations for building an effective teaching force. The note incorporates both quantitative and qualitative analyses, drawing on findings from administrative sources, international assessment results and comparative databases, and other studies related to Armenia’s teacher policies. It synthesizes analyses of what teachers’ profiles, priorities, challenges, and practices look like in Armenia, identifies messages for policymakers, and recommends ways to enhance teacher effectiveness and learning for all in Armenia.

During the drafting of this note, the Covid-19 pandemic caused school closures and learning disruptions at unprecedented levels in Armenia as it did across the world. The World Bank estimates that Learning Adjusted Years of schooling (LAYS) in Armenia will fall from their baseline of 7.9 years to 7.5 years due to these school closures. This estimate equates to a 4 percent drop in terms of learning in school. The effect of COVID-19 on education may have an adverse impact on the economy as well, a potential outcome that it is critical to mitigate. Learning losses for student cohorts affected by COVID-19 are estimated to reduce their expected earnings by 3 percent per student. While the current situation presents a huge challenge, it can also be used as an opportunity to reimagine education in Armenia.

The findings in this note suggest that Armenia already has key strengths on which it can build: Teachers in the country are highly educated, collaborate with one another, and have a high degree of self-confidence in their ability to implement the curriculum. However, they find it difficult to keep up with curricular changes and think they do not receive enough support regarding workload and professional development around new and improved ways to deliver instruction. Armenia has an older teaching force and less than half of teachers report that they received any professional training after the year 2016. Additionally, teacher salaries are below the average wage. Around half of teachers say they are overload-

Figure S-2. Change in Learning-Adjusted Years of Schooling (LAYS), Baseline Versus Post-Covid



Source: Azevedo, et al., 2020; World Bank.

Note: Learning Adjusted Years of schooling is an indicator that takes into account the average years of schooling in general education while adjusting those years by the amount of learning that takes place during them.

ed with administrative tasks, believe they have too many students and too much material to cover, and feel they need more time to prepare and to assist individual students. There is effective collaboration between teachers and school management for delivering instruction, but teachers express a need for school management to better support their professional development. Teachers also mention shortcomings in using education technologies in delivering instruction, and this may require more attention, especially since the Covid-19 pandemic has emphasized the increased need to effectively utilize education technology resources to support remote learning.

Ensuring that teachers become better skilled and more resilient, particularly during this time of crisis, is the first step in reimagining the education system in Armenia. This note aims to emphasize the importance of making complementary and sizable shifts in investment revolving around teacher education and professional development, given the large-scale curriculum reform underway. The three policy action areas related to teachers that this note outlines as priorities to ensure the success of the new curricular investments are summarized in the table below. Investing in these action areas with a “policy package” of policies that complement one another is key for education success.

Challenges, Recommendations, and Actions

Challenge
Lack of relevant and timely professional development for teachers and support in accessing professional development opportunities.

Recommendation
1a. Provide continuous support and motivation, in the form of high-quality in-service professional development and strong school leadership, to allow teachers to continually improve.

Actions
Practical, repeated learning opportunities help teachers to be more effective. Teacher training needs to be individually targeted and repeated, with follow-up coaching and peer-to-peer learning opportunities, often around a specific pedagogical technique (World Bank, 2018b). Providing the full teaching workforce with intensive teacher professional development in stages, rather than light-touch, one-time professional development, has the potential to work best.

For teachers who struggle with instruction and time use in the classroom, detailed teachers' guides and access to coaching and mentoring can help them deliver, especially for foundational skills like basic literacy and numeracy.

Better managed schools deliver better results, and it is possible to help school leaders be more effective at supporting teachers in fulfilling their professional goals (Beteille and Evans, 2019). This can be done by regular support and trainings for school managers on how to manage their teacher resources.

Responsible Entity MoESCS and other relevant partners	Timing ST (< 1 year); LT (> 1 year) ST planning building into LT results
Fiscal Cost Small, medium, large Small	Priority Highest=1 1

Challenge
Lack of technological learning resources and teacher support in learning them

Recommendation
1b. Prioritize investment in educational resources so that all students can be assisted effectively if they lag behind and improve the practices of using education technology as a strong complement to teachers, and not as their substitute.

Actions
Using technology wisely to enhance the ability of teachers to reach every student, factoring their areas of strength and development, is crucial.^a Technology works best when it complements teachers rather than substituting for them, and solutions need to be tested locally before scaling.

This is especially relevant in the context of Covid-19, which provides an opportunity for teachers to build technological skills. For teachers to remain effective technically, they need continuous access and refreshers to sustain the ability to use different modes of digital communication, which may require investment in hardware, connectivity, and regular trainings. Once the school systems stabilize, teachers should be encouraged and supported to maintain their technological skills in collaboration with school leadership (World Bank, forthcoming).

It is also important to note that primary and secondary school teachers may have different needs regarding the role of technology and the types of instructional and learning materials that could help enhance competency-based, student-centered learning complementing the two levels. It would be advisable to collaborate with local NGOs, research institutes and private sector actors that are active in this realm to employ the right solutions for each level of education in a way that assists continuous learning.

Responsible Entity MoESCS and other relevant partners	Timing ST (< 1 year); LT (> 1 year) ST planning building into LT results
Fiscal Cost Small, medium, large Small	Priority Highest=1 1

a. Evidence shows that technology can enable distance teacher coaching in South Africa, can provide learning targeted to the level of the child in India, and can make school inspectors more effective in Kenya (Beteille and Evans, 2019).

Challenge
Overload of teacher's tasks—too many students, too much material and more time needed to support students.

Recommendation
2. Increase efficiency and motivation of teachers by equipping them with relevant teaching materials that are aligned with learner needs and planning enough available time for teaching and organizing support staff (such as teacher assistants, special education or resources teachers) to support the teacher to meet the specific learning needs of students.

Actions
Teachers' norm is 22 hours, and it should be explored by the Ministry to understand if there is a real issue with high workload by surveying teachers on this specific topic and understanding their needs better. This would give space to teachers to support all learners as well as to better prepare for class.

In addition, teachers' teaching workloads can be heavy with additional duties such as coordinating the activities of parent-teacher associations, running extracurricular activities, and performing administrative tasks. It is important to have a structure in place in every school where teachers' workloads are managed transparently, properly and fairly by school management. This can be achieved by task setting for each teacher at the beginning of each semester and having regular check-ins between the teacher and school management.

Rationalizing the content of the curricula and providing high quality instructional materials (including teacher guides) are a good start to support teachers. Doing this can also support teachers (through better time and task planning opportunities) and it can also support learners by enabling them to receive continuous support from their teachers (and assistant teachers) that can boost learning).^b

Responsible Entity MoESCS and other relevant partners	Timing ST (< 1 year); LT (> 1 year) ST planning building into LT results
Fiscal Cost Small, medium, large Small	Priority Highest=1 1

b. Evidence shows that technology can enable distance teacher coaching in South Africa, can provide learning targeted to the level of the child in India, and can make school inspectors more effective in Kenya (Beteille and Evans, 2019).
c. As an example, Indonesia doubled pay for certified teachers, which increased teacher satisfaction, but it had no effect on student performance and learning outcomes in the short-term (de Ree et al., 2017).

Challenge
Teaching has a relatively low professional status and can be considered a less attractive field for younger generations

Recommendation
3. Make teaching a more attractive profession for potential and existing teachers by improving its status, compensation policies and career progression structures.

Actions
Professions are attractive when they pay well, provide an environment conducive to work, build intrinsic motivation, and offer learning and career advancement opportunities. Students learn more in countries where teaching is a well-regarded profession (Dolton et al., 2018). A range of factors can potentially improve the professional status of teachers: competitive teacher salaries, raising the criteria and qualifications to enter and stay in the profession, improving working conditions, and expanding opportunities for learning and career advancement. The lack of these conditions may lead to unwanted teacher behaviors such as high absenteeism or moonlighting as private tutors that undermine the promise of the learning process at schools.

Raising salaries for teachers alone is not a solution because it does not fix shortcomings in motivation or effort.^c Teacher compensation policies in Armenia do not reward performance based on student outcomes. Whether or not compensation policies rewarding performance are likely to be employed and effective depends on whether the main constraints to better teaching lie within the reach of teachers, and whether information and management systems would allow such a system to be credible. Armenia can explore this option through the newly planned teacher standards system that is in the pipeline.

Ongoing communication and committed leadership can also play a key role in making career progression structures successful.

Responsible Entity MoESCS and other relevant partners	Timing ST (< 1 year); LT (> 1 year) ST planning building into LT results
Fiscal Cost Small, medium, large Small	Priority Highest=1 1



1

Introduction and Background

Purpose and Methodology of this Note

The objective of this note is to develop a thorough understanding of the profile and practices of teachers in Armenia and to provide evidence-based, actionable policy recommendations for building an effective teaching force. The note examines the profile and practices of teachers and offers recommendations for how to better align teacher policies in Armenia with the need to improve those learning outcomes for students that are critically important for success and well-being in the 21st century. The note will complement the activities related to ongoing curriculum revision efforts supported under the EU4Innovation STEM Pilot (P167562); and Education Improvement Project (P130182).

The note draws on findings from administrative sources, international assessment results, international comparative databases, and other studies of Armenia's teacher policies.¹ It synthesizes analyses of what teachers' profiles, priorities, challenges, and practices look like in Armenia, identifies messages for policymakers, and recommends ways to enhance teacher effectiveness and learning for all in Armenia. The quantitative analysis is performed through a stocktaking of teachers in public elementary (grades 1-4), lower secondary (grades 5-9) and upper secondary (grades 10-12) schools, focusing on two regions representing urban (Yerevan) and rural (Tavush) areas to look at differences as well as potential similarities. For the stock taking, administrative databases and information sources have been the primary sources used to analyze skill levels, experience of teachers by region, their professional development needs, salary structure, and use of instructional mate-

rials and classroom practices.² The stock-taking exercise is complemented with an analysis of the teacher survey results from the 2015 Trends in International Mathematics and Science Study (TIMSS) to highlight opinions of teachers regarding their profession, instructional methods and teaching needs.³

The roadmap to the note is as follows: The *Background and Context* section focuses on the description of the sector and key trends; the *Stock Taking* section then presents a descriptive analysis of teacher profiles in Armenia, including demographic profiles, educational background, professional development trends, and salary structure; the *Spotlight on Math and Science Teachers* section shares the results of the 2015 TIMSS teacher survey with a qualitative analysis of teachers' views of a wide range of topics and their professional development needs; followed by a final section on *Reflections and Recommendations* where four main priorities for action are outlined for policymakers.

Background and Context

Although Armenia has reduced its poverty rate in recent years, the country's development challenges remain, including low human development indicators and lack of labor productivity. Firms face problems in recruiting and retaining workers with the required skills and view the lack of workforce skills as a major obstacle to their activities. The inadequate



quality of education, especially the extent to which education fails to provide practical skills and updated knowledge, has emerged as a problem. In addition to technical skills, young workers particularly lack more generic skills related to problem solving, critical and creative thinking, teamwork, languages, and leadership (Rutkowski, 2013). Consequently, while employers report skill constraints, a large share of the labor force is unemployed or inactive. Alleviating the skill constraints of Armenia's firms is crucial to boost productivity and competitiveness (World Bank, 2017).

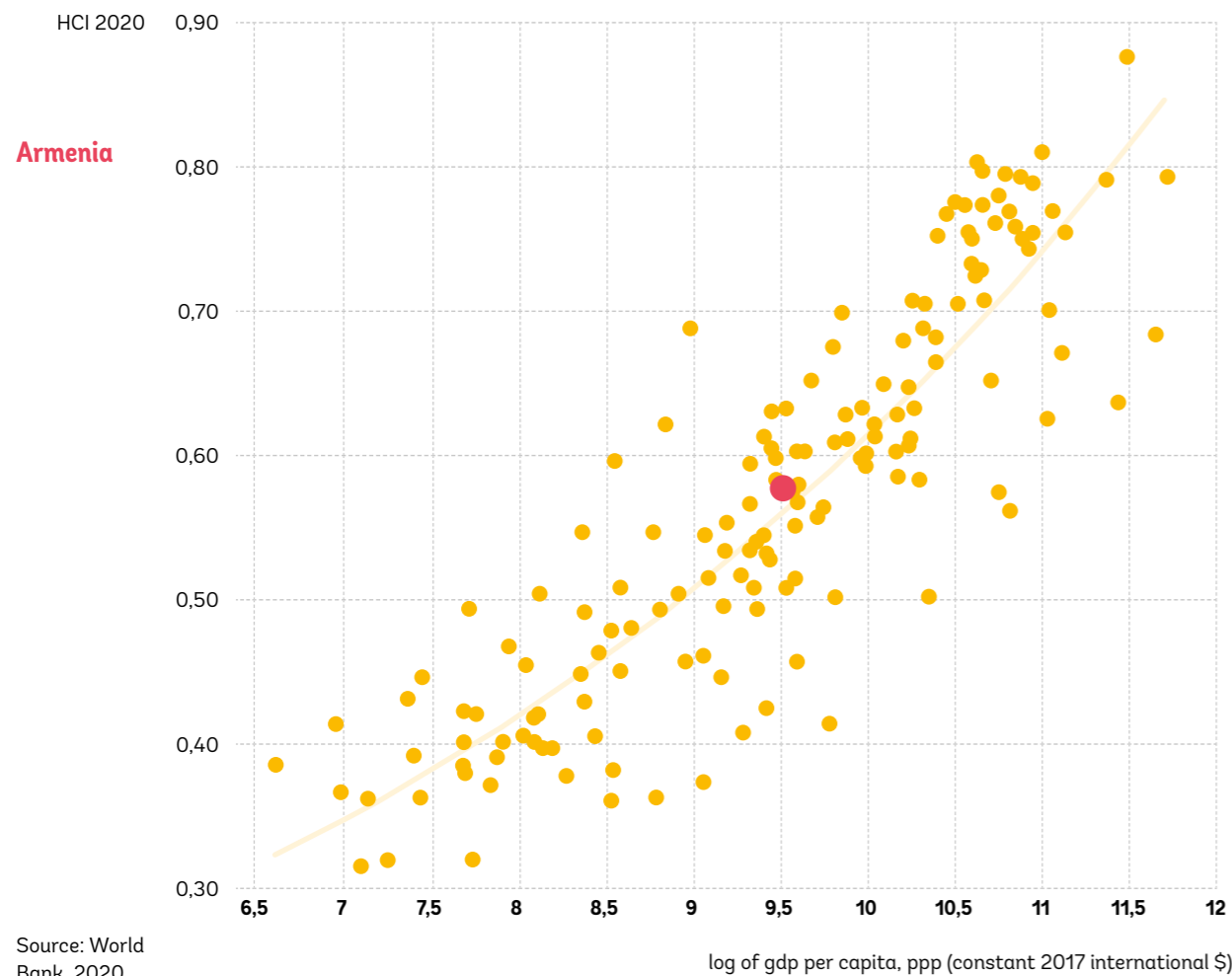
The education sector in Armenia has seen improvements but continues to present challenges. Attainment is high, on average, but it is biased toward the nonpoor. School coverage has improved, but issues of equity and quality persist, with rural students at a particular disadvantage. Teaching practices, instructional materials, and textbooks are outdated, and curricular goals are not closely aligned to modern labor market needs. The institutional capacity to guide change has been limited, and education spending has been consistently low.

1 An earlier version of this note intended to include more qualitative complements such as implementing the World Bank's TEACH classroom observation tool and focus group analysis of Armenian teachers. However, the developments around the Covid-19 pandemic made performing these tasks impossible in the current fiscal year.

2 All quantitative and qualitative administrative data has been obtained from the National Center for Education Technology (NaCET) on behalf of the Ministry of Education, Science, Culture and Sport. The data covers all teachers in Armenia and was collected/curated in early 2020 by NaCET.

3 TIMSS 2015 is the latest TIMSS assessment implemented, and the sample is representative for math and science teachers in 4th and 9th grades.

Figure 1-1. Where Armenia Ranks in the Human Capital Index (Productivity against GDP per Capita)



Armenia does not rank high in the Human Capital Index (HCI), which is largely attributable to its challenges with education quality and inequalities in access to quality education services. The index implies that a child born in Armenia today will be only 58 percent as productive when (s)he grows up as she could be if she enjoyed complete education and full health. The HCI shows that a child who starts school at age 4 in Armenia can formally expect to complete 11.3 years of schooling by the age of 18. Factoring in what children actually learn, however, an analysis of learning outcomes shows that expected years of schooling equate to 8 years. This results in a learning gap of 3.3 years. Students from poor families and rural and remote areas have higher rates of early dropout from formal education and often fail to pursue other training opportunities. Armenia’s HCI is lower than the average for its region; the country performs at average for its income level, but it lags two school years behind the average

among high-income economies (Figure 1-1 and Table 1-1). Between 2012 and 2017, the HCI value for Armenia has remained almost unchanged.

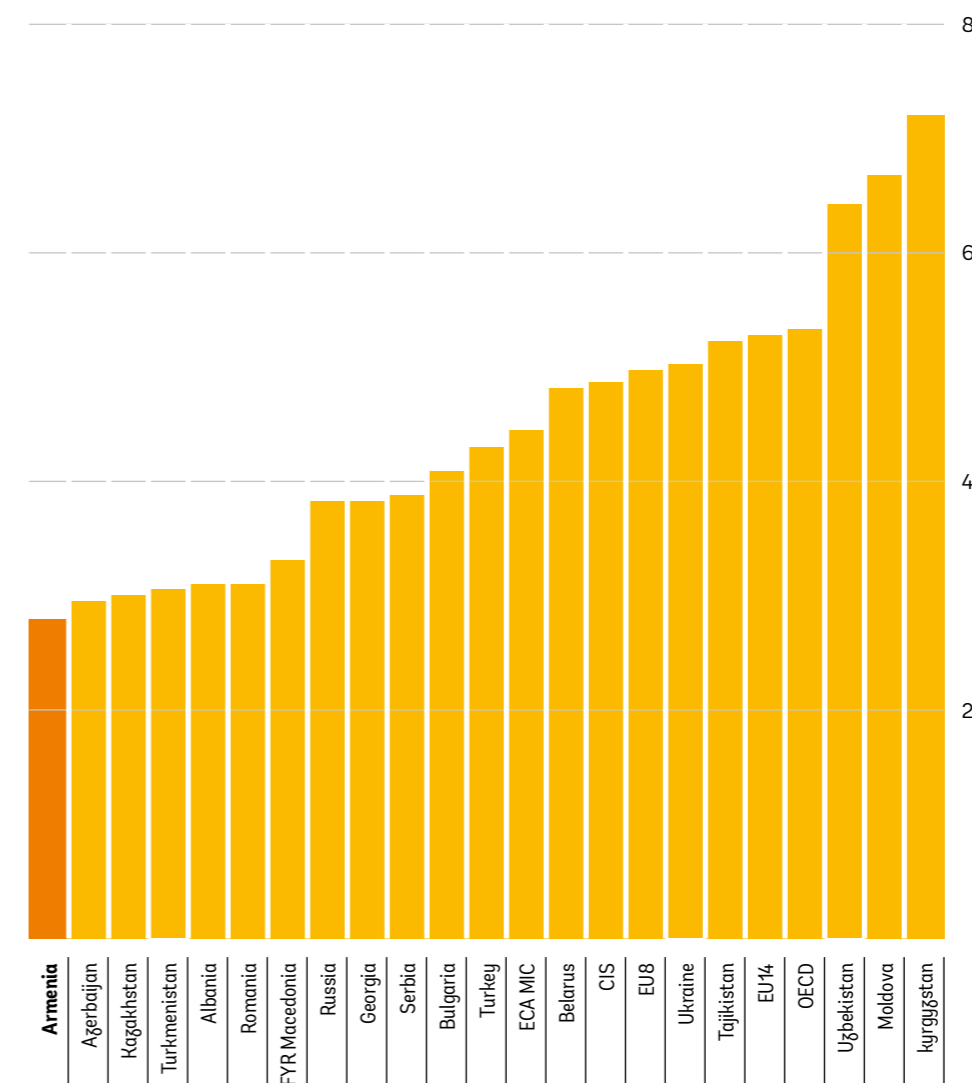
Armenia’s rate of education spending is low, below regional averages and around half the rate of EU-14 countries. Armenia’s share of education spending is 2.7 percent of its GDP, as compared with 4.4 percent for middle-income countries on average in ECA countries, and 5.3 percent for EU-14 countries (Figure 1-2). Education spending is an important indicator for identifying how much is being invested in education to improve access and quality issues in any given system. While increased spending on education alone does not solve all the issues related to access or quality, when countries track the use of this spending, measure its impact, and adjust to different needs, more spending per child can make a meaningful positive impact on learning outcomes (Jackson, 2018). In primary education, the average expenditure per child

Table 1-1. Unpacking the Human Capital Index: Armenia vs. Europe and Central Asia

Indicator	Armenia	Europe and Central Asia
HCI Component 1: Survival		
Probability of survival to age 5	0.988	0.993
HCI Component 2: School		
Expected years of school	11.3	13.1
Harmonized test scores	443	479
HCI Component 1: Health		
Survival rate from age 15-60	0.886	0.904
Fraction of children under 5 not stunted	0.906	0.903
Human Capital Index (HCI)	0.58	0.69

Source: World Bank, 2020.

Figure 1-2. Education Expenditure as a Share of GDP, by Country, Armenia, ECA Countries, and EU and OECD Averages (latest data)



(of primary education age) in Armenia is \$936 (PPP), which is 88 percent below the average for the ECA region and 59 percent below the average for upper-middle-income countries.

Returns to schooling are low but increasing. The empirical evidence on returns to investment in education provides useful indicators—typically in the form of projected future wages—that help individuals decide how to invest in their own human capital. Returns to schooling can also be used to analyze the distributional effects of

The education sector in Armenia has seen improvements but continues to present challenges.

education finance programs to guide public policy with respect to investment in education. A recent review shows that the private average global

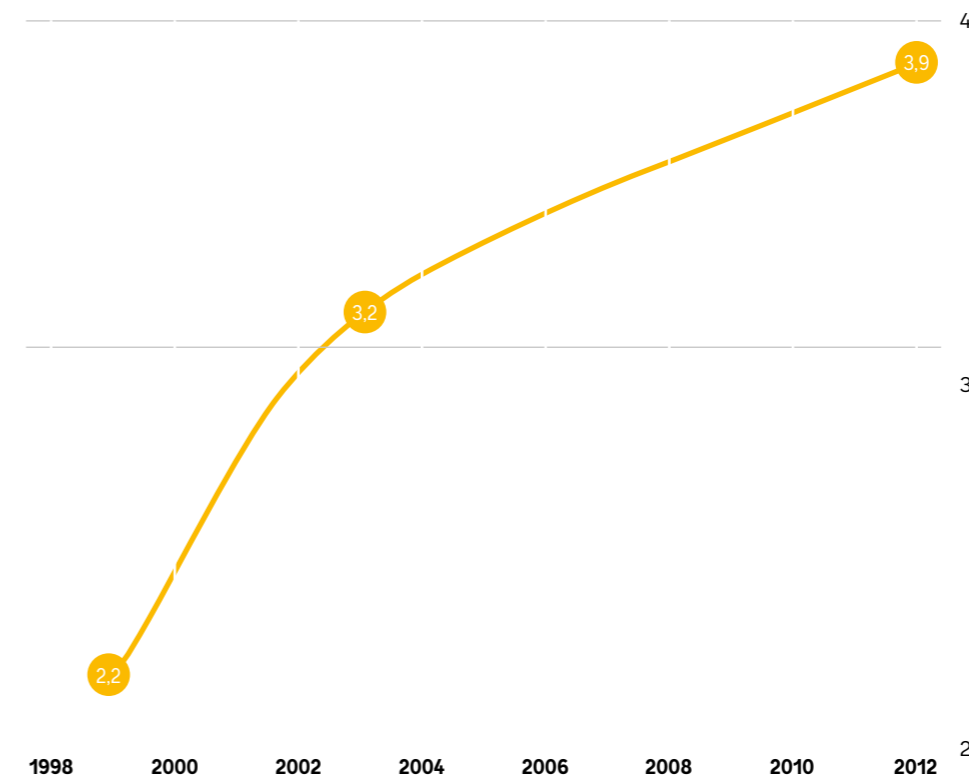


rate of return to one extra year of schooling is about 9 percent a year and, moreover, this rate is very stable over decades. Social returns to schooling remain high, above 10 percent at the secondary and higher education levels. Women experience higher average rates of return to schooling, showing that girls' education remains a priority. Returns are higher in low-income countries. This shows that regarding efficiency in the use of resources, spending on human capital is a good investment (Psacharopoulos and Patrinos, 2018). Armenia's rate of return to schooling has not reached the 9 percent levels yet, but it has been steadily increasing (Figure 1-3). Unfortunately, low levels of spending for a long period of time leave the sector lacking for resources, usually affecting the most vulnerable students; this in turn widens the learning gaps among groups.

Learning gaps are a very significant issue with implications not only for the education systems of countries, but for the well-being and productivity of individuals for a lifetime. In low- and middle-income countries, the learning crisis means that deficits in ed-

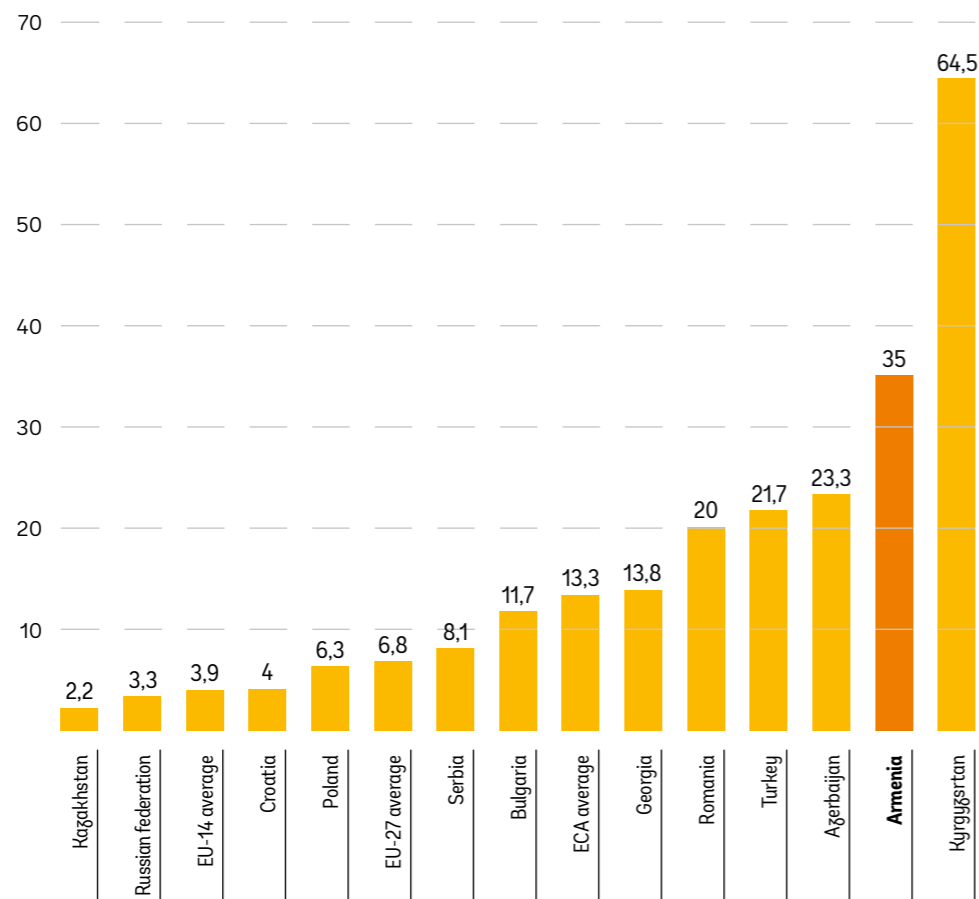
ucation outcomes are a major contributor to human capital deficits. Shortcomings in both the quantity and quality of schooling mean that education is not fulfilling its promise, is not contributing to poverty reduction or sustainable growth, and might potentially be contributing to perpetuate social and economic inequality. In recent years, it has become clear that even though the majority of children are in school, a large proportion are not acquiring fundamental skills. Without foundational learning, students often fail to thrive later in school or when they join the workforce. Poor education outcomes have major costs for future prosperity, given that human capital is the most important component of wealth globally. Indeed, its importance grows as countries become more prosperous: while human capital makes up 41 percent of wealth in poor countries, in high-income Organization for Economic Co-operation and Development (OECD) countries, human capital makes up over 70 percent of wealth. From this perspective, eliminating "learning poverty" is as urgent as eliminating extreme monetary poverty, stunting, or hunger (World Bank, 2019).

Figure 1-3. Armenia: Annual Rate of Return from Investment in Schooling, 1998-2012



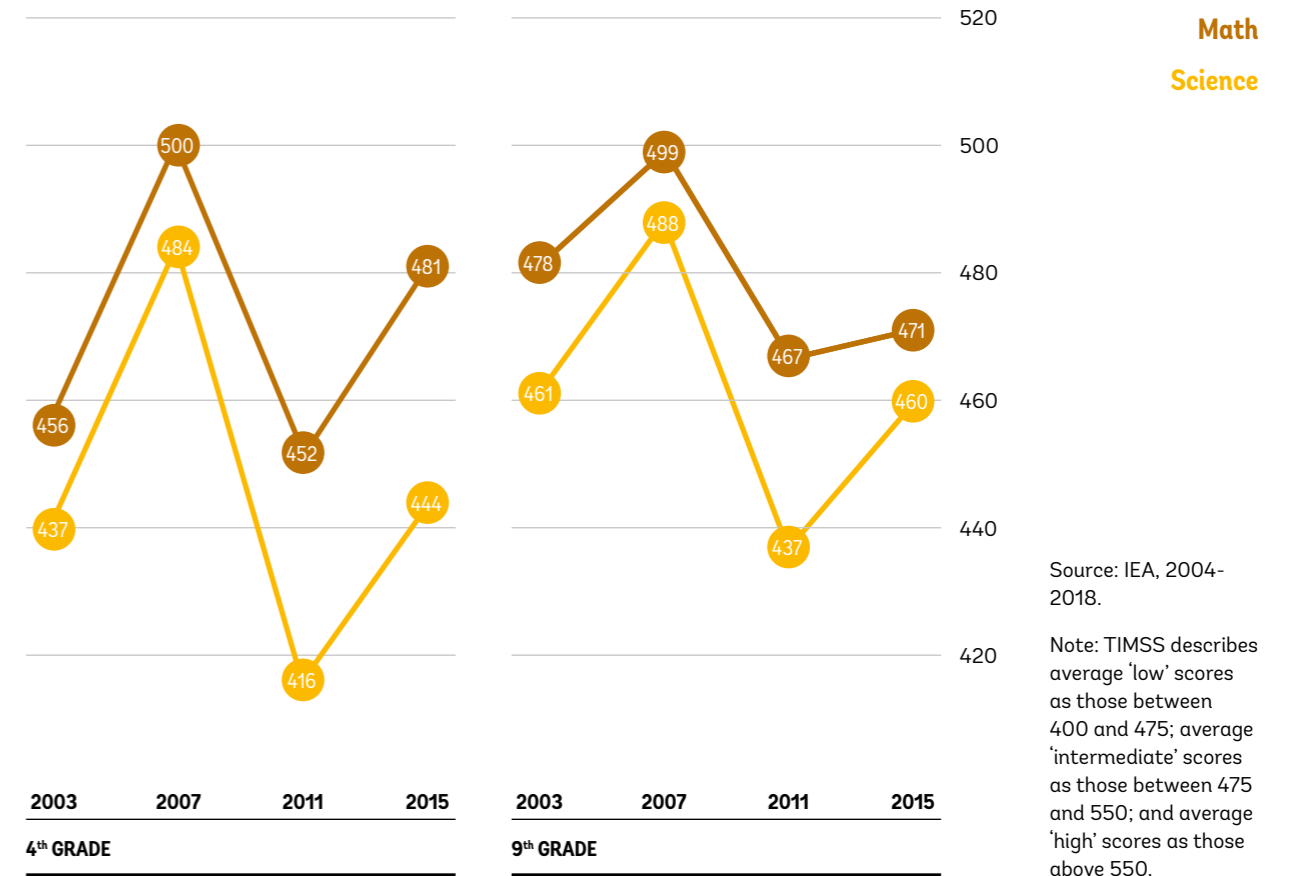
Source: World Bank calculations, based on Psacharopoulos and Patrinos, 2018.

Figure 1-4. Learning Poverty in Armenia and Comparators, 2019



Source: World Bank calculations, based on World Bank, 2019.
Note: EU-14 and EU-27 averages comprise available country data.

Figure 1-5. TIMSS Math and Science Average Score for Armenia, 2003-2015



Source: IEA, 2004-2018.
Note: TIMSS describes average 'low' scores as those between 400 and 475; average 'intermediate' scores as those between 475 and 550; and average 'high' scores as those above 550.

Unfortunately, more than a third of children in Armenia are not proficient in reading. An additional measure used to assess the strength of schooling and learning is the Learning Poverty Index. Learning Poverty means being unable to read and understand a short, age-appropriate text by age 10.⁴ Around 35 percent of children in Armenia at late primary school age today are not proficient in reading. Learning Poverty in Armenia is 21.7 percentage points worse than the average for the ECA region and around 30 percentage points worse than EU averages (Figure 1-4). Potential factors behind this high Learning Poverty rate in Armenia, despite the country's high institutional capacity, are (1) that assessment data are not informing instruction; (2) that literacy

is out of alignment with the overall curriculum; (3) that inadequate support is given to teachers for lesson planning; and (or) (4) that the reading materials are lacking in relevant content. These potential explanations make it important to consider interventions specifically around teachers such as ensuring effective teaching, empowering and increasing school leaders' ability to guide professional development, providing more variety and choice in lesson content for teachers (which might include complex structured lesson plans which provide autonomy).

Armenian students' learning levels in math and science have been stagnating for more than 15 years and there are significant learning gaps between different groups of students within the country. Large-scale learning assessments in Armenia indicate that students are below the desired levels in math and science and that there are learning gaps between students based on their socio-economic levels and locations (IEA, 2016). Since 2003, Armenia's TIMSS average scores have not surpassed the international average (500) in science or math

in either grade.⁵ The highest scores achieved by Armenian students in both science and math in the 4th and 9th grade were recorded in 2007. Following that year, the average scores in Armenia fell (in 2011) and then rose (in 2015), but they have not reached 2007 levels (Figure 1-5).

There are learning gaps between different groups of students, particularly between the richest and poorest quintiles. Girls, those in urban settings, and students from families with higher socio-economic status have higher scores, on average, in Armenia. In the TIMSS 2015 9th grade math assessment, there was a 65-point score difference between the students from the richest and those from the poorest quintiles, which is equivalent to roughly two years of schooling (Figure 1-6).⁶ This means students at the lowest socio-economic level (bottom 20 percent) are, on

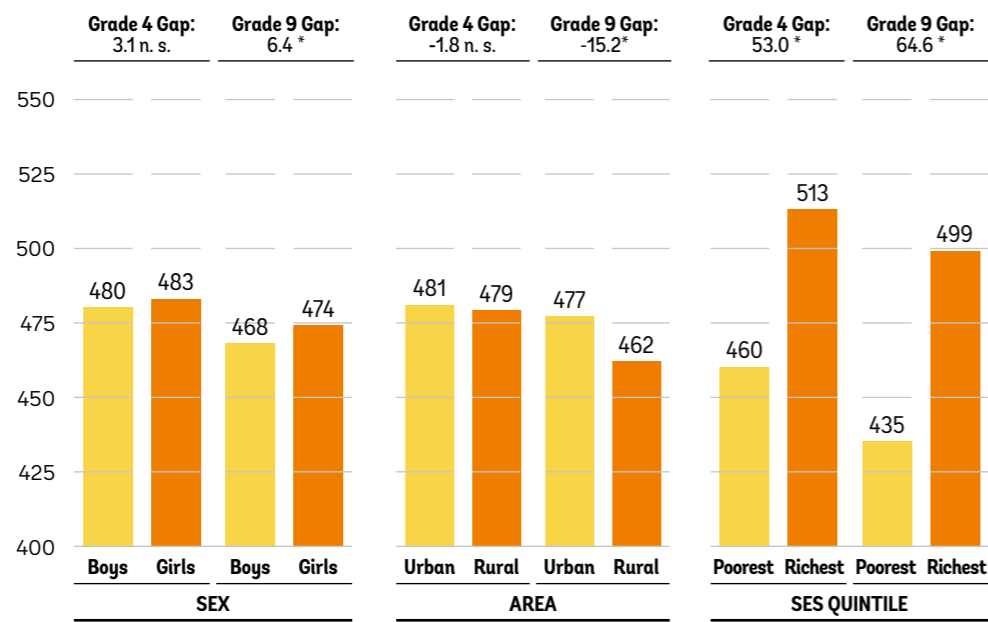
average, two years behind in terms of learning compared to their peers from the top 20 percent. There is a clear score advantage to being in an urban location, and it is especially large and significant for 9th grade math scores (Figure 1-7, Panel B). However, the largest and most significant score differentials are between the socio-economic levels. These differences, which have widened significantly in Armenia since 2007 and have not come down, are currently equivalent to two years or more of schooling for both grades (Figure 1-7, Panel C). Analyzing the results in detail is important, because it reveals the access and learning inequalities in the education system, which in turn have implications for appropriate policy responses for specific groups of students. It is also important to point out that more disaggregated data would need to be collected in order to understand learning inequalities further.

Students who enjoy learning a subject and those who feel confident in a subject had much better learning outcomes. Age and incidence of bullying also had significant impacts as well. The statistical model shows that the age of

4 The Learning Poverty indicator brings together schooling and learning. It starts with the share of children who haven't achieved minimum reading proficiency and adjusts it by the proportion of children who are out of school. The focus on reading for the Learning Poverty indicator stems from (i) reading proficiency being an easily understood measure of learning; (ii) reading being a student's gateway to learning in every other area; and, (iii) reading proficiency having the potential to serve as a proxy for foundational learning in other subjects.

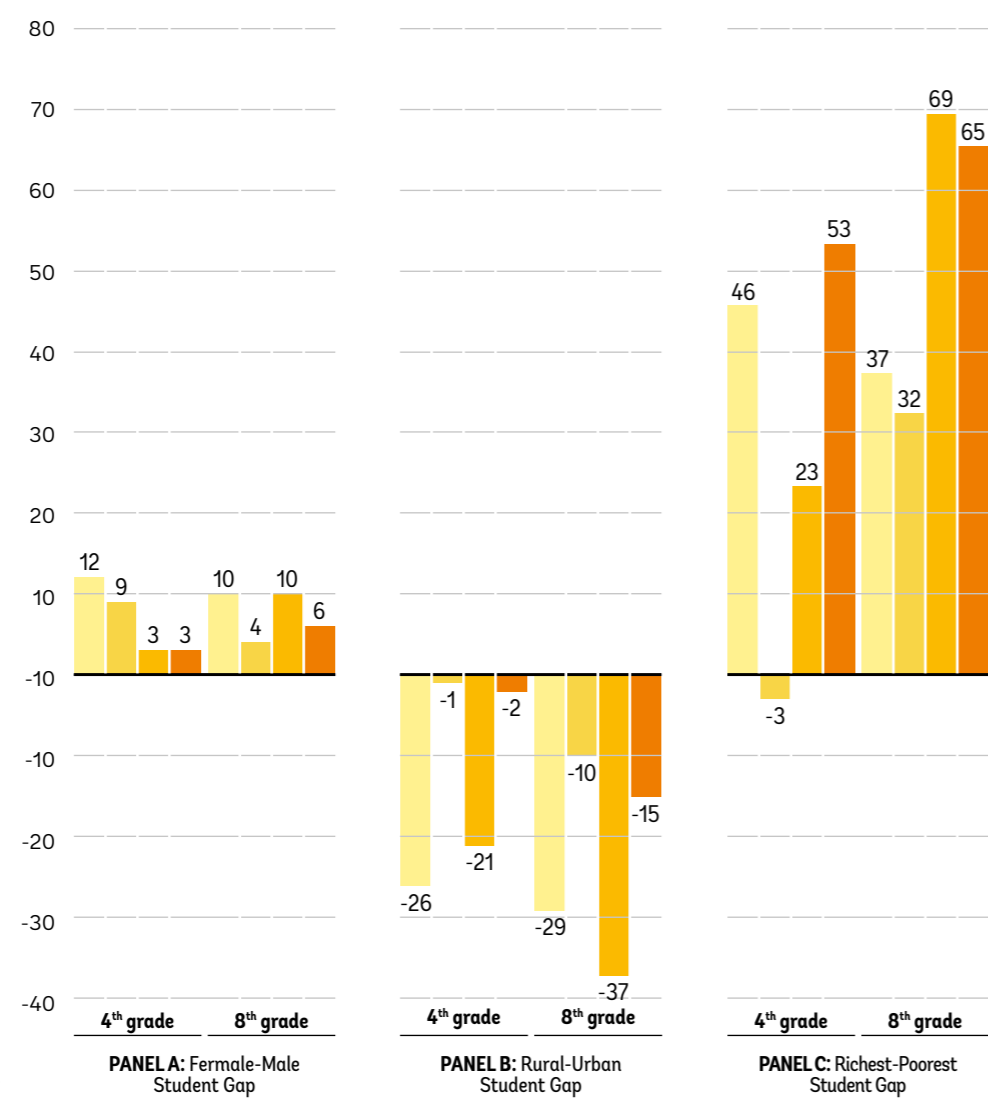
5 A score of 500 indicates an intermediate benchmark level in which students are able to apply and demonstrate basic knowledge of concepts and material.
6 30-40 points is roughly equivalent to one year of schooling.

Figure 1-6. TIMSS math score differences by gender, location and socio-economic level, 2015



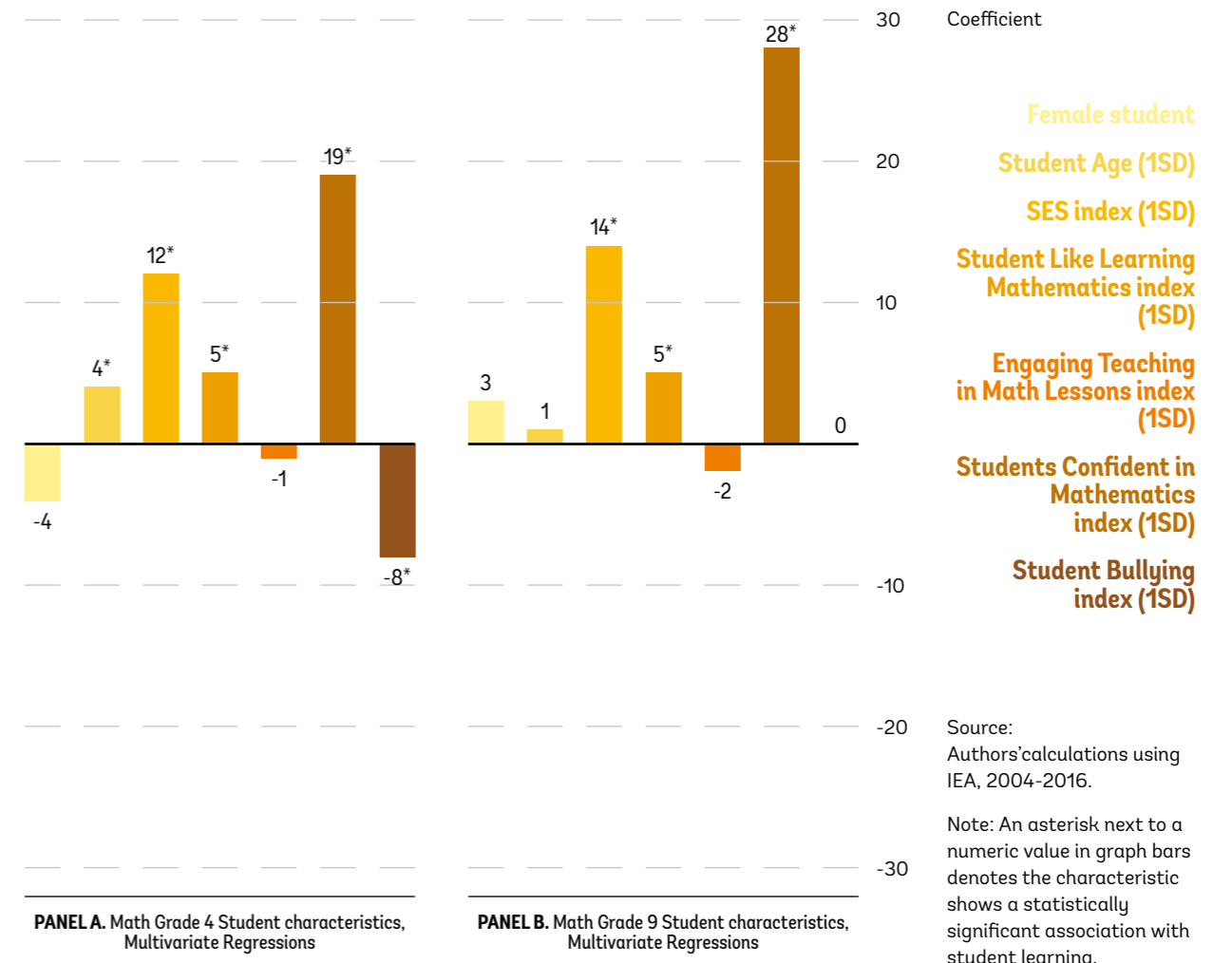
Source: Authors' calculations using IEA, 2016. An asterisk denotes the score differences are statistically significant.

Figure 1-7. TIMSS Math Score Differences by Gender, Location and Socioeconomic Level, 2003 through 2015



Source: Authors' calculations using IEA, 2004-2016. Filled in bars signify score differentials that are statistically significant; empty bars signify score differentials that are not statistically significant.

Figure 1-8. Adjusted Math Score Gaps in TIMSS 2015



Source: Authors' calculations using IEA, 2004-2016. Note: An asterisk next to a numeric value in graph bars denotes the characteristic shows a statistically significant association with student learning.

students mattered for learning in the 4th grade, while socio-economic level mattered in both grades, consistent with earlier results and with the literature overall. Students who like learning math and who were confident in math-related tasks had significantly better outcomes, close to being equivalent to a difference of one year of schooling. Bullying had a larger and significant impact on learning outcomes for younger students but no net impact on learning outcomes for older students (Figure 1-8).

achievement of the student, however, after adjusting by other characteristics of the students and the school, the results are only statistically significant for older students (in a bivariate model). In contrast, accumulated years of teacher experience, teachers whose area of study (major in education and math) is consistent with the subject taught, or class size are not necessarily associated with an increase in the test results (Figure 9).⁷

A growing body of research indicates that teachers are the most important school-based determinant of student learning. The difference between the impact of a weak and great teacher on student test scores has been estimated at being equivalent to more than two years of schooling. The results from the regression analysis conducted among 4th and 9th grade students suggest that the highest the education attained by a teacher it is more likely a positive relationship with the

Armenia is currently embarking on an ambitious curriculum reform that can address some of the above issues and provide opportunities for students to reach their full potential to ensure the social, economic, and political development of the country. However, this comes with its own set of challenges from the teachers' perspective. As part of these

⁷ See Annexes 1, and 2 for detailed regression coefficients, standard errors, and variance decomposition

Box 1-1

Comparison of Determinants of TIMSS 4th Grade Math Achievement Results Among Countries in the ECA Region

The relationship between students, teachers, and schools' characteristics and math student achievement in TIMSS 2015 is also analyzed in a multivariate regression model for several ECA countries for comparison. The results suggest that the socioeconomic status (SES) of the student plays an important role in explaining the differences in math achievement for all but one of the countries included in the analysis: a student's math score varies between 10 to 23 points if the student's SES measure changes by one unit.

Student age. The age of the student at the time of the test shows a positive association with the math score, but the results are significant only in Armenia and Georgia, where the scores are about 4 points higher among students whose age is one year above the country mean.

Student gender. Once other student characteristics are controlled for, no statistically significant differences are observed between male and female students, except in Croatia, where female students have a math score 9 points below their male peers.

Student confidence and bullying. An index that measures self-reported confidence in math indicates a strong positive relationship with achievement across all countries, while reported bullying operates in the opposite direction for most of the countries.

Teacher experience. In Armenia, Kazakhstan, and Russia, the greater experience of teachers show a negative relationship with the results of their students in comparison with the results among their less experienced peers. In Armenia and Kazakhstan this negative correlation is true only of teachers with more than 30 years of experience, whereas in Russia, it is true of all teachers with more than 10 years' experience. Croatia and Georgia show an opposite pattern: more-experienced teachers are more likely to

have a positive influence, although this effect is conditional on the amount of experience accumulated.

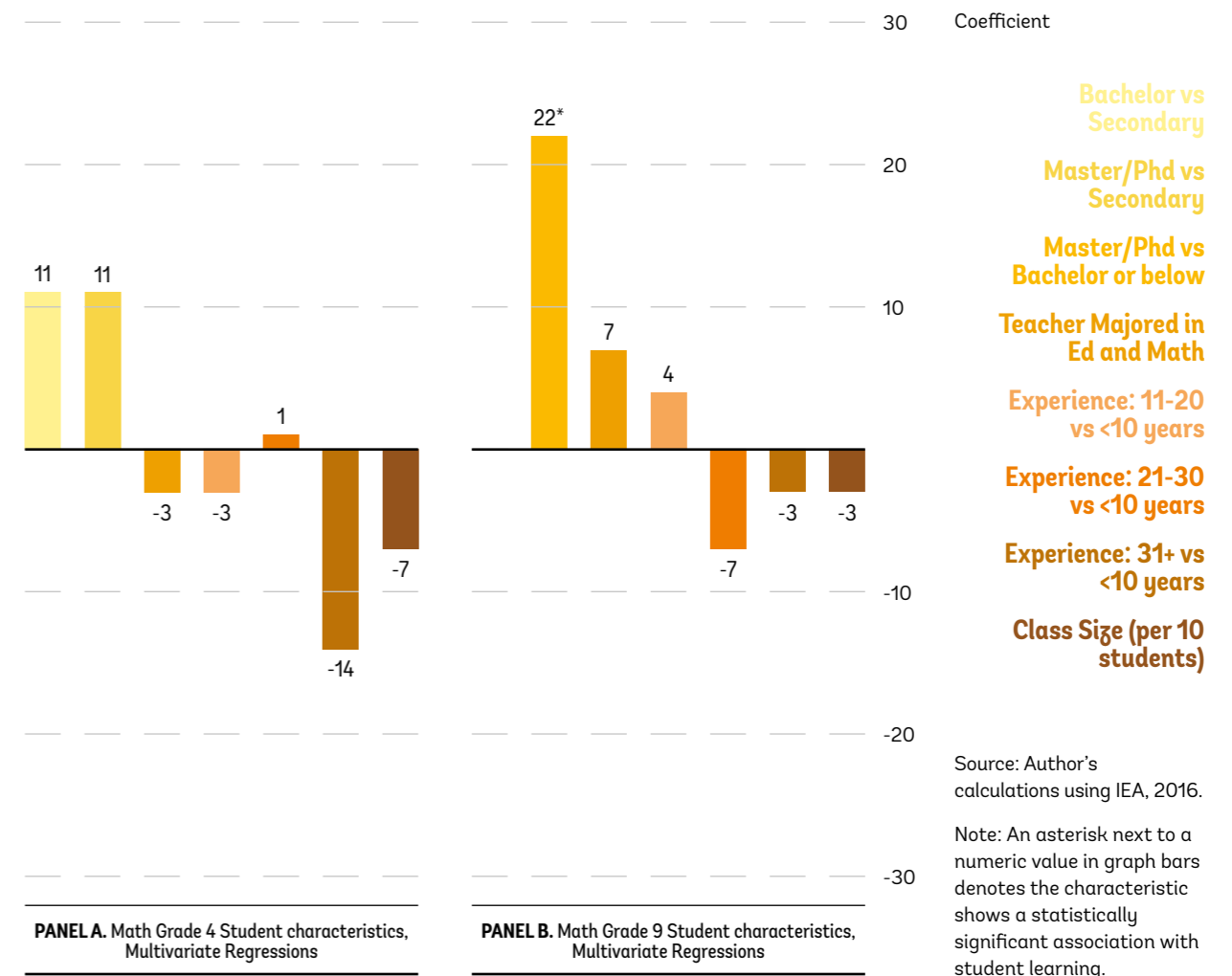
Teacher education. The educational attainment of the teaching workforce is strikingly different across the analytical samples of the selected countries, which in turn might help explain some of the patterns observed. The share of highly qualified teachers (graduate level or above) in Bulgaria and Croatia exceeds 70 and 85 percent, respectively. In Armenia they represent almost half of the teachers assigned to math in grade 4 but are virtually absent among teachers in Kazakhstan or represent a small share in Serbia (14%).

Student location. Among the school characteristics, only the location of schools shows a clearer pattern of relationship with student performance. In Croatia, Kazakhstan and Bulgaria, students in schools located in rural areas are more likely to underperform when measured against their peers in urban schools.

School and student variation. We also analyzed school and student variation in achievement of grade 4 students in math for Armenia and some comparator countries in the ECA region that participated in TIMSS 2015. The results suggest that in Armenia, the variation in math scores associated with the students represents about two-thirds of the total score variation. This indicates that on average, in any given school there is a 75 percent probability that students exhibit similar scores to those of their peers. Still, an important part of the variation originates in the differences across schools. The remaining 34 percent of the total variation suggests that the differences in scores can be attributed to differences between schools, signaling how the body composition of achievement varies across schools. Results in Georgia are similar, with about 29 percent of the total variation remaining at the school level. In contrast, because the variation in scores across schools in Bulgaria, Kazakhstan, and Russia represents between 40 and 62 percent, it is an indication that achievement between schools varies strongly in those countries.

Note: The regression results table (Table A-3) and student achievement variation table (Table A-4) can be found in Annex B.

Figures 1-9. Armenia – Impact of Teacher Characteristics on Student Learning, Math, Grades 4 and 9



reforms, Armenia is looking to transition into a competency-based education system. This transition will be a complex one, because all resources, curricula, and education processes have historically been knowledge-based, teacher-centered, and linear. Competency-based education requires inquiry based, student-centered, outcome-oriented inclusive teaching, learning, and assessment, along with a revised curriculum. It is important to point out that effective instruction includes elements from both the knowledge-based and competency-based approaches. However, competency-based curricula revolve around the outcomes of a learning process (i.e., knowledge, skills, and attitudes) rather than mainly focusing on what learners are expected to learn in terms of traditionally defined subject content in a given period of time. A competency-based curriculum is adaptive to the changing needs of students and teachers, implying that learning activities

and environments are chosen so that learners can acquire and apply the knowledge, skills, and attitudes to situations they encounter in everyday life.⁸ Competency-based learning is critical and conducive to fostering 21st century skills, including critical thinking, flexibility, creativity and collaboration; and it is necessary to meet the needs of the fast-paced, technology driven, ever-changing nature of the workforce.

8 A few examples of 'knowledge-based' (KB) and 'competency-based' (CB) approaches are as follows: In the KB approach, students advance toward the end of a fixed period of time regardless of whether they have fully learned the concepts and skills. In the CB approach, students continue to receive instructional support until they fully learn the concepts and skills and only then advance after demonstrating mastery; this requires additional instructional support, not retention. In the KB approach, the school and instruction are designed to deliver a single curriculum to all students based on age. In the CB approach, schools are organized with greater flexibility to provide instruction and learning opportunities to meet students where they are and take advantage of anytime, anywhere learning.

Although curriculum reform is key to the implementation of competency-based education, it is not sufficient to help teachers tailor their instructional methods and practices toward more student-centered approaches.

Learning materials such as textbooks, teacher guides, and syllabi that are currently in use in Armenia are overloaded with information, and the sequencing of subjects within and between grades and schooling levels need to be revised. In addition, Armenian teachers report that they lack continuous access to high-quality professional development. Continuous professional development has been shown to not only impact teacher performance but also teacher motivation, effort, and peer relationships. It has been noted that training delivery in Armenia is overly theoretical, and that trainers use a lecture format instead of interactive learning methods. The trainings may not offer new information to those teachers with advanced skills or to those who had already been through one training cycle. Teachers are not always able to use what they have learned due to lack of time available or because they do not understand how to implement what they have learned. Limitations are magnified in rural schools, because travel and training requirements create significant challenges for teachers at this level. It is critical to understand how all teachers can be equipped and supported in the transition to a competency-based, student-centered curriculum that has a positive impact on students' motivation and learning outcomes. Thus, there is a need to gain knowledge on how teachers teach; what instructional methods and materials they use; how they feel about their profession; the challenges they face; and what their learning/teaching needs are.

A growing body of research indicates that teachers are the most important school-based determinant of student learning

Box 1-2

Ongoing World Bank Activities in Armenia Relevant for Supporting Teachers

The World Bank provides support to Armenia to update its basic education curricula and to improve the quality of STEM education in the pilot region of Tavush. As part of the EU4Innovation STEM Pilot activities, the World Bank assistance focuses on modernizing the basic education STEM curricula, training teachers on modern, student-centered pedagogies to improve educational outcomes; there may potentially be a roll-out of the STEM pilot. However, the activities agreed on by the EU and the Armenian government do not include any specific teacher diagnostic study that would shed light on current teaching practices in Armenia.

Summary: The objective of this note is to develop a thorough understanding of the profile and practices of teachers in Armenia. Armenia ranks relatively low in the Human Capital Index (HCI), its education spending is below regional/EU averages, and students' learning levels have been stagnant. Learning gaps are important because they have implications not only for the education system, but for the well-being and productivity of individuals for a lifetime. To address some of these challenges, Armenia is currently embarking on an ambitious curriculum reform process to provide opportunities for all students to reach their full potential and to ensure the social, economic, and political development of the country. This comes with its own set of challenges from the teachers' perspective and a growing body of research indicates that teachers are the most important school-based determinant of student learning. So, there is a need to gain more knowledge on how teachers teach; what instructional methods and materials they use; how they feel about their profession and the challenges they face and; what their learning/teaching needs are.

Meet Gohar

Gohar is a 55-year-old woman who has been teaching chemistry and biology in a rural school in the northern region of Tavush for 33 years. Gohar has a higher education degree from Yerevan State Pedagogical Institute with a specialization in both chemistry and pedagogy.

Gohar is a fictitious teacher based on the insight and real-life experiences of 15 teachers in the Tavush and Yerevan regions. We will follow her journey to becoming a teacher, her current day-to-day experience, her challenges, and her aspirations for the future generation of teachers and learners.





2

A Descriptive Analysis of Teachers in Armenia

Box 2-1

K-12 Education System in Armenia

Armenia has a 3-4-5-3 formal education structure. The system has three years of pre-primary school, which has an official entry age of 3 years. Primary school has an official entry age of 6 years and a duration of four grades. Two final examinations are administered at the end of 4th grade: in Armenian and in mathematics.

Upon completion of these grade levels and exams, students then choose to pursue either the third level of general education or attend a vocational school. Secondary school is divided into two cycles: lower secondary and upper secondary. Lower secondary education encompasses grades 5 through 9 and culminates in the certificate of general basic education. Upper secondary education encompasses grades 10 through 12 and culminates in the certificate of general secondary education. In addition, Armenia has two upper secondary vocational education tracks that last up to three years.

The 3 years of pre-primary school are free and are not compulsory; the 12 years of primary and secondary school are also free but compulsory. There are school graduation exams in the 12th grade as well as a high stakes university entrance exam for those who want to continue into tertiary education.

Armenia has an older and predominantly female teacher population

In this section we take stock of the number of teachers and their regional distribution, teacher demographics, teacher educational background and experience, teacher professional development, and tenure and salaries, both nationally and specifically in Yerevan and Tavush as comparative urban and rural areas. The sample size used in the analysis is 35,902 out of 37,477 school staff in all of Armenia who self-reported that they hold any type of teaching position or title (95.8 percent of the entire sample provided by NaCET).⁹ All of the figures are presented at in the national level as well as the Yerevan and Tavush levels.¹⁰ See Box 2-1 for a summary description on the education system.

Teacher Demographics

Armenia has an older and predominantly female teacher population. The average age of all general education teachers in Armenia is 46.8. Around 20 percent of all Armenian teachers are above the age of 60, and only 11 percent are under the age of 30. For Yerevan and Tavush, the situation is similar: only 10 percent of teachers in Yerevan and 13 percent of teachers in Tavush are younger than 30 (Figure 2-1).

Armenia is among the countries in the ECA region with the highest share of older teachers (46 percent), while the EU and OECD averages are much lower (Figure 2-2). The low proportion of young teachers could be an indicator of the lack of interest or attractiveness of the teaching profession for the younger generation, or of a lack of new spaces for young graduates to join the teaching

⁹ Supporting staff titles, unrelated to teaching, are excluded.
¹⁰ Data is from teachers working in a total of 246 schools in Yerevan and 82 schools in Tavush. All schools included are teaching Grades 1-12. These number represent the entirety of the grade 1-12 schools in these regions.

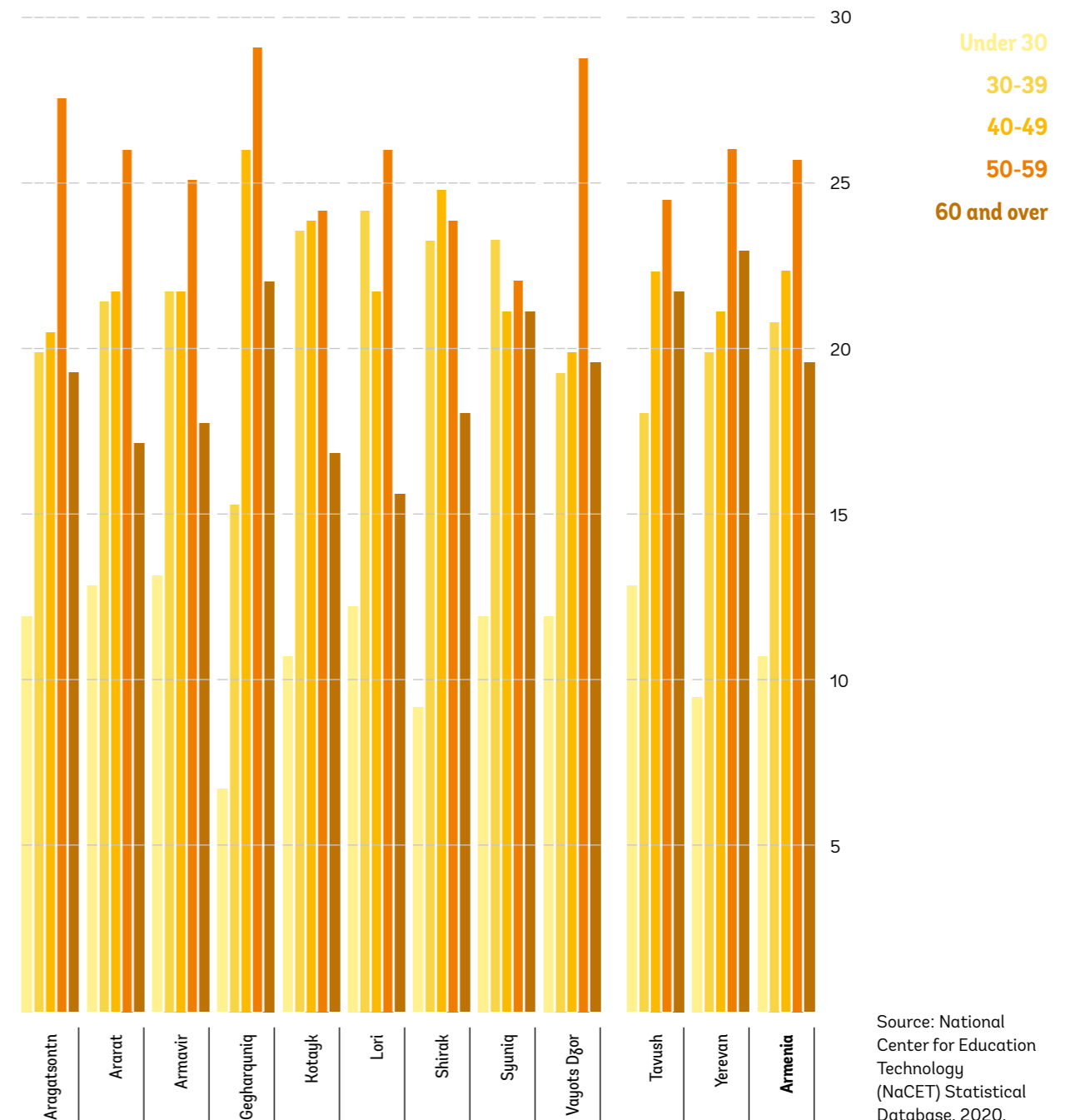
force. Around half (46 percent) of teachers in Armenia are above age 50, which means Armenia will have to renew about one out of two members of its teaching workforce over the next decade or so. This has the potential to lead to significant changes in the demand for new teachers as well as implications for school budgets.

education, globally 66 percent of teachers were female in 2018 while in all of Central and Eastern Europe 85 percent were female. For secondary education, these rates were 54 percent globally and 72 percent in Central and Eastern Europe, respectively in 2018.¹¹ Armenia's pattern matches the trends of Central and Eastern Europe.

Most teachers in Armenia are women, as is the case in other countries in the ECA region (Figure 2-3). For a quick comparison, for primary

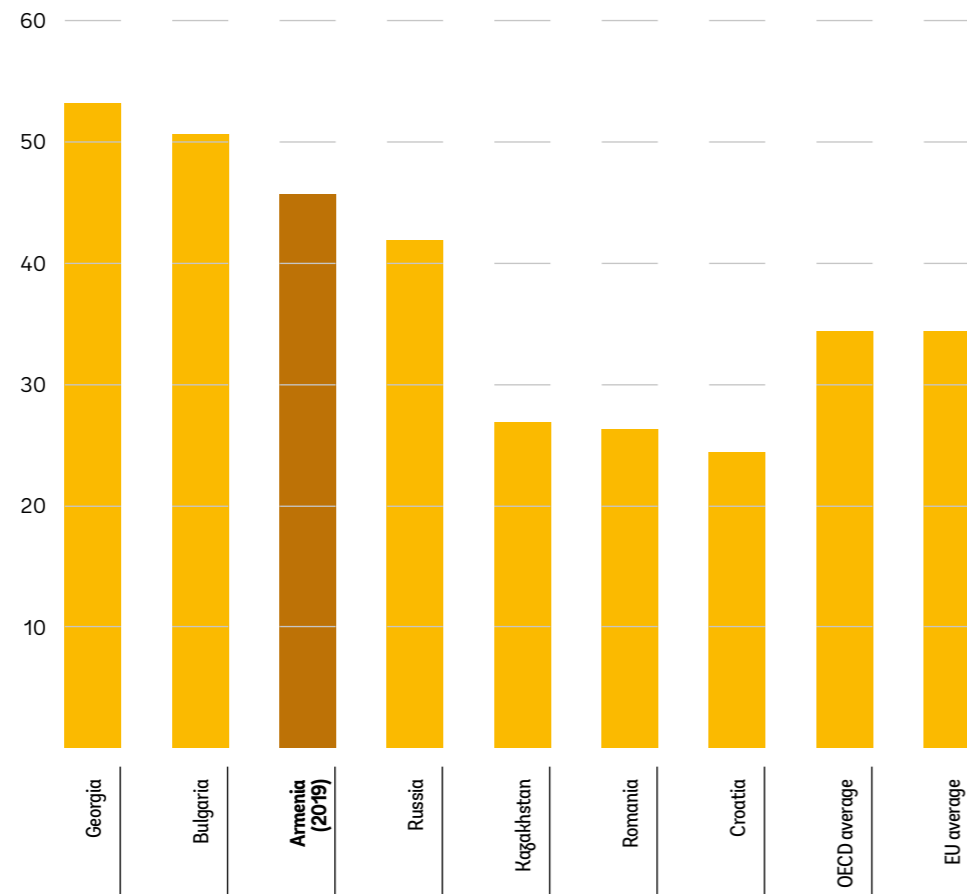
¹¹ UNESCO, UIS database, 2020.

Figure 2-1. Age distribution of Teachers in Armenia, by Marz (region), 2020 (percent)



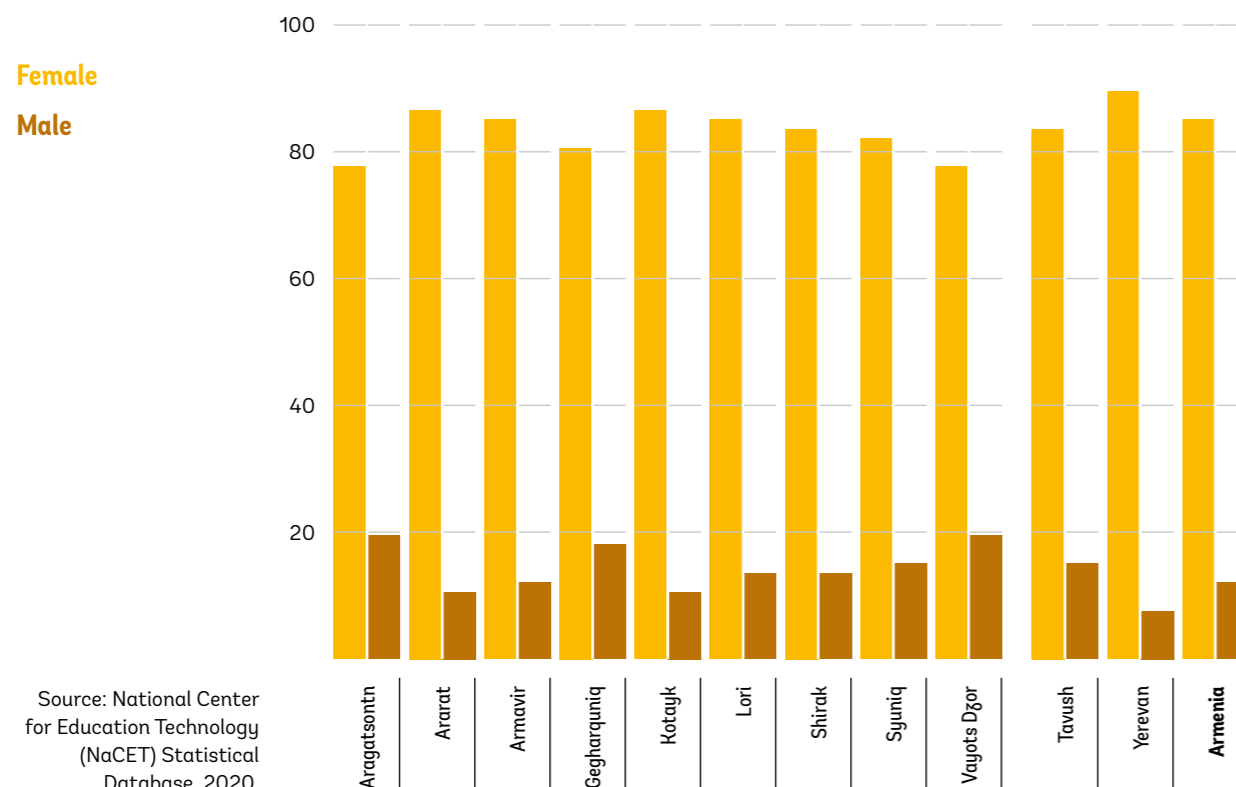
Source: National Center for Education Technology (NaCET) Statistical Database, 2020.

Figure 2-2. Share of Teachers Above Age 50 in Select ECA Countries, 2018 (percent)



Source: OECD Teaching and Learning International Survey (TALIS) Statistical Database, 2018.

Figure 2-3. Gender Distribution of Teachers in Armenia, by Marḡ (region), 2020 (percent)



Source: National Center for Education Technology (NaCET) Statistical Database, 2020.

Teachers' Educational Background and Tenure

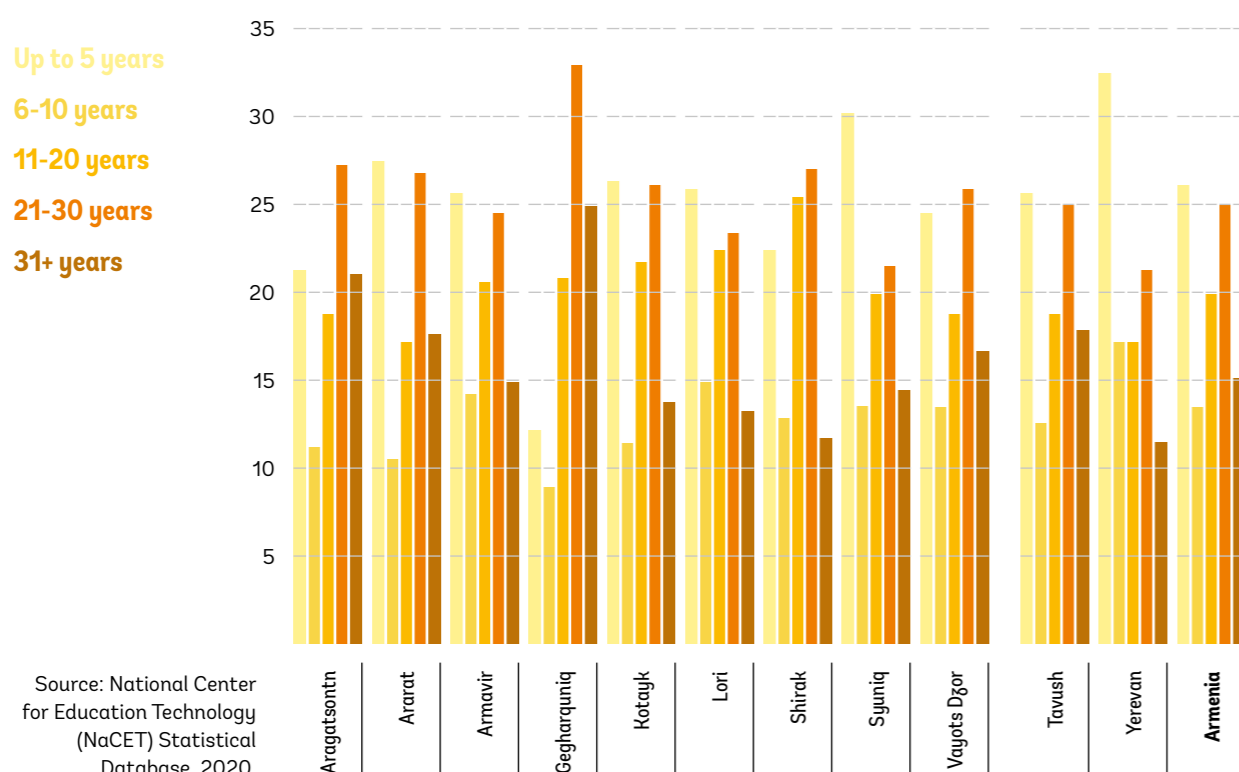
In terms of the educational background of teachers, only one-fifth of current teachers in Armenia graduated after the year 2011. Around 17 percent of current teachers studied to become a teacher, and a big portion of them received their degrees from Armenian State Pedagogical University or Yerevan State University. There are marked differences between an urban center like Yerevan and a rural area like Tavush from the perspective of teachers' educational background. In Armenia, around one-third of all teachers have graduated from the Armenian Pedagogical University (the main teacher education institution in Armenia). In Tavush, more than half of teachers studied humanities, language, and literature, or science in fields such as physics, chemistry, or biology, as opposed to studying to become a teacher. Tavush also has one of the lowest shares of teachers who were educated at the Armenian State Pedagogical University (22 percent), following the Lori and Shirak regions (8 percent for both).

In terms of teaching tenure, there are marked regional differences for the least tenured and the most tenured teacher shares. One out of four teachers in Armenia has a teaching tenure of five years or less. This rate is much higher for teachers in Yerevan—one-third of all teachers there (33 percent) have a tenure of five years or less. Yerevan also has the lowest share of teachers whose tenure is more than 30 years (11 percent), while Tavush has the highest share (18 percent) (Figure 2-4).

Teachers in Yerevan are the oldest across all regions of Armenia. However, they also have the lowest tenure and the most advanced age at which they were given tenure (Tables 2-1 and 2-2). Yerevan has the lowest average years of tenure (14.4 compared to 17.7 in Tavush and 16.8 in Armenia overall), and as teachers get older in Yerevan, their tenure levels fall behind those in Tavush and Armenia overall. To double-check this, we look at the related issue of age at tenure, and this confirms that it takes teachers much



Figure 2-4. Tenure Distribution of Teachers in Armenia, by Marz (region), 2020 (percent)



Source: National Center for Education Technology (NaCET) Statistical Database, 2020.

Table 2-1. Average Years of Teacher Tenure, Yerevan and Tavush Regions, by Age Category

Age categories	MARZ		
	Yerevan	Tavush	Total
Under 30 years	3.1	3.1	3.2
30-39 years	6.0	7.6	7.6
40-49 years	12.5	16.7	16.3
50-59 years	18.6	22.9	22.5
60 years and over	23.7	30.0	27.0
Total	14.4	17.7	16.8

Source: National Center for Education Technology (NaCET) Statistical Database, 2020.

longer to acquire tenure in Yerevan (where average age at tenure is 34.5) compared to Tavush and Armenia overall (where the average ages at tenure are 30.1 and 31, respectively). This seemingly puzzling situation might be due to teachers in Yerevan rotating more often from one school to another and from one region to another. If so,

Table 2-2. Average Age at Tenure, Yerevan and Tavush Regions, by Age Category

Age categories	MARZ		
	Yerevan	Tavush	Total
Under 30 years	23.8	23.7	23.9
30-39 years	29.5	27.6	27.7
40-49 years	33.2	28.8	29.3
50-59 years	37.1	32.6	33.0
60 years and over	41.7	34.7	37.6
Total	34.5	30.1	31.0

Source: National Center for Education Technology (NaCET) Statistical Database, 2020.

it would mean that their continuous time in a classroom is disrupted more frequently than is the case for teachers in other regions.¹²

¹² To be sure that this is the case, we need to confirm how the question was asked or collected by NaCET.

Box 2-2

Teacher Selection and Recruitment in Armenia

In Armenia, those who want to be teachers can get pedagogical degrees from state-run universities, vocational schools, and some private institutions. For state-run universities, students take university entrance exams for up to six specializations and are typically admitted to a specialization based on their score, not their preferences. Many students who do not intend on entering the teacher specialization are selected for it anyway due to their examination scores. In Armenia, the teaching specialization generally requires lower scores compared to other specializations (Belyavina et al., 2010).

Some rural areas have teacher shortages—resulting from weak demand by teachers to relocate there. Schools and teachers in rural areas generally receive less support, may have an unequal supply of resources and worse physical conditions, and teachers often use multi-grade teaching methods due to the lower numbers of students (MoESCS, 2014). To strengthen and incentivize the recruitment of teachers in rural areas, the MoESCS has deployed financial incentive programs, including offering a housing allowance and reimbursing relocation costs (Belyavina et al., 2010).

Recruitment for vacancies within schools is not a centralized or uniform process. In most instances, each school is responsible for advertising for and hiring teachers to fill its own vacancies, and in rare cases regional officials place teachers. Policy states that the process of hiring must be competitive unless there is a qualified teacher in the school who has at least one year of experience in the subject matter of the vacant position. As a result of this lengthy bureaucratic measure, most

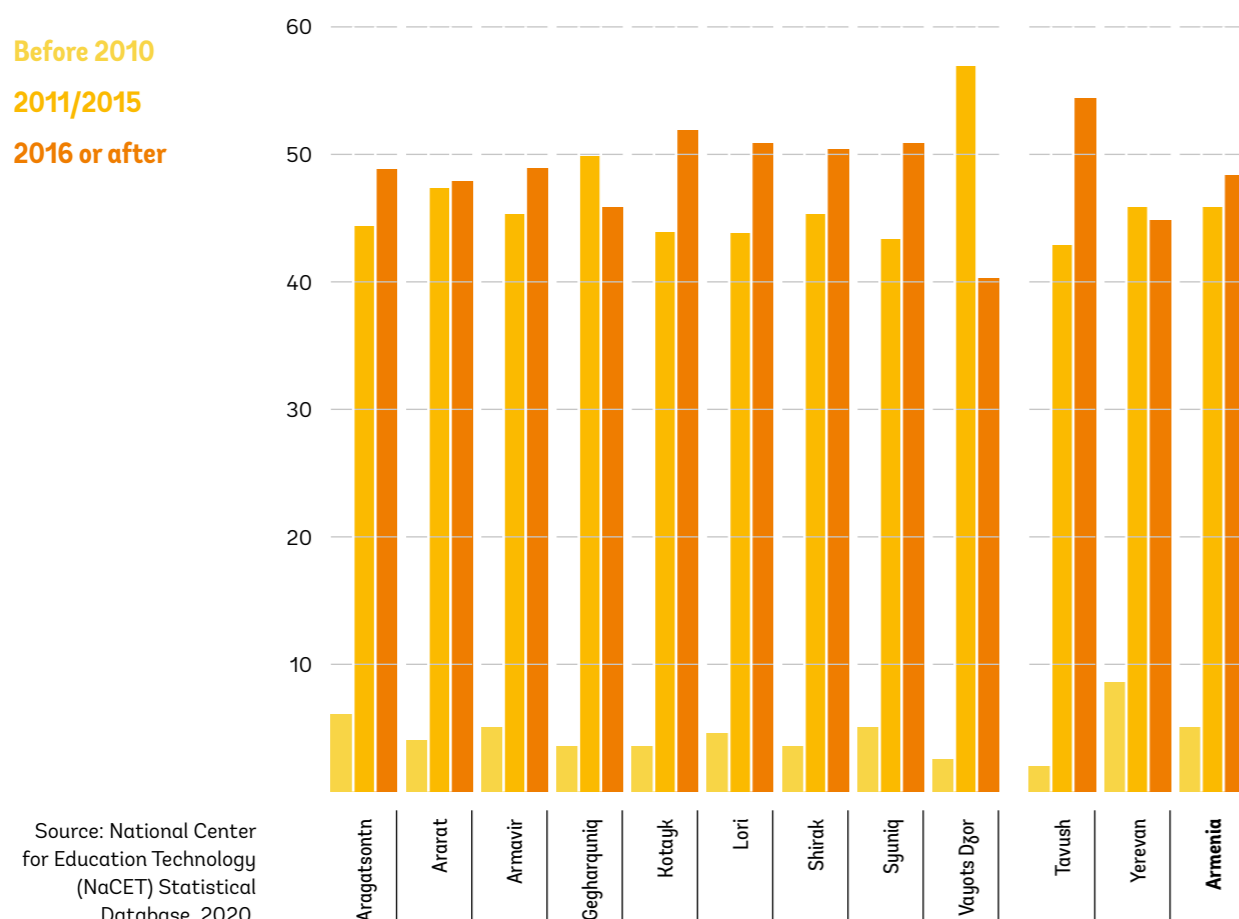
directors elect to hire at the school level. The requirements of a competitive hiring process include announcing vacancies in public media outlets to increase competition and transparency in recruitment, as well as conducting a candidate testing via a ministry-approved written and oral examination process and selecting candidates through a hiring commission approved by the director of an institution (Belyavina et al., 2010; MoESCS, 2013). More information on the selection of the hiring commission and the testing procedure can be found in Annex C.

According to new regulations by the MoESCS, once teachers secure a position there are several ways to continue professional development, including qualification ranking and attestation. Teacher performance is evaluated annually at the school level by a master teacher.^{*} The evaluation provides an assessment of the teacher’s instruction and identifies professional development opportunities and resources for teachers (MoESCS, 2020). A committee within the MoESCS oversees the attestation process and conducts an investigation of a series of documents on the teacher’s behalf. Teachers are obligated to pass pre-attestation training, which is funded by the school.^{**}

Armenia’s Constitution guarantees the right to establish and join trade unions, but research indicates that there are no active unions of educators (Belyavina et al., 2010).

^{*} A master teacher is someone who has undergone at least three successful evaluations with a BA degree or two successful evaluations with an MA degree.
^{**} Source: About General Education HO-160-N (Arm.), (2009).

Figure 2-5. Share of Teachers Who Received Training as Part of their Professional Development, by Marz (region), 2020



Source: National Center for Education Technology (NaCET) Statistical Database, 2020.

Teachers' Professional Development and Training

In Armenia teacher training is considered the main element of professional development. The National Institute of Education (NIE), which used to function under the MoESCS was fully responsible for state-supported trainings and it had branches in all the marzes of Armenia. By 2013, the government mainstreamed the NIE's responsibility for teacher training to maximize the efficiency of public funding, particularly because the NIE was already mandated to conduct teacher training activities and it had the public funding to carry out those activities.¹³ As a result, the NIE was solely responsible for teacher training until it was closed down in July 2019. As of 2020, the

NIE has been dismantled and its functions have been absorbed into a new foundation called the National Center for Education Development and Innovation (NCEDI), which is expected to carry out teacher professional development activities going forward. However, not much is known about the professional development functions and capacity of this new center.¹⁴

The Armenian Law on General Education, passed by the National Assembly in 2009, sets requirements for teacher attestation, teacher training, and the teacher qualification ladder. In 2010, Armenia introduced a systemized process of teacher attestation, which mandated that all teachers undergo mandatory retraining every

14 According to its founding charter, the goal of NCEDI is "to support the development and modernization of the education sector in order to ensure quality education of students, improve their health and social protection, bring up competitive individuals and increase the degree of their self-actualization and develop the professional potential in education."

13 Before this mandate was handed to NIE, there were other actors partaking in delivering trainings to teachers such as NGOs and other educational institutions such as universities.



five years. There are no national teacher training interval rules set by the MoESCS other than the attestation rule (Khachatryan, Petrosyan, and Terzgyan, 2013). Teacher trainings other than the attestation ones are not mandatory. Completing quality teacher education is only the initial requirement for teachers in Armenia. At present, the licensing process for teachers and headmasters is ongoing; this creates opportunity for professional skill development (IEA, 2016).

An important indicator of teacher quality is whether teachers have received professional development training recently. In Armenia, around half of all teachers reported that they have received training since 2016, while the rest received it before that date. Around 5 percent of teachers in Armenia have not received any professional development for a decade; in Yerevan this share is 8 percent. It is worth noting that the share of teachers who received training after 2016 is much higher in Tavush (55 percent) than in Yerevan (45 per-

cent) (Figure 2-5). The now defunct National Institute of Education (NIE) was responsible for providing the teacher trainings, with some minor contributions made by other actors such as NGOs. In Tavush, there is a much larger share of NGOs than elsewhere delivering professional development activities for teachers (13 percent of NGOs, as compared with 3 percent for both Yerevan and Armenia as a whole). This may point to the specific needs of teachers in rural areas who may be better served by local NGOs. It may also partly explain why Yerevan seems to have issues with receiving more recent training compared to Tavush—NGOs might have been filling that gap in rural Tavush.¹⁵

15 The World Bank's Armenia Education Quality and Relevance Project supported the training of 12,165 teachers in innovative teaching methods by 13 training organizations between 2011 and 2012. By 2013, NIE became solely responsible for teacher training and benefitted from the teacher training materials developed under the project until it was closed down in July 2019.

Box 2-3

Teach For Armenia

Teach For Armenia is a nonprofit organization that aims to expand educational opportunities in Armenia through recruiting, training, and supporting high-achieving graduates to teach for a minimum of two years in the most underserved schools across Armenia as fellows of the program. It was founded in 2013 and seeks to ensure that children across Armenia have equal opportunity in education. For this reason, it has found it important to work with public schools and have fellows work as teachers and not just as volunteers. Teach for Armenia believes that a partnership with the Ministry of Education is key to successful deployment of its approach.

Training. Teach For Armenia fellows (also known as teacher-leaders) participate in a rigorous two-year, context-specific training and leadership development program that prepared them for a future as educators in Armenia. To be eligible fellows must have a bachelors degree prior to the start of the program. Admission to the program is a four-step process including an online application, a phone interview, testing (i.e., subject-matter testing in the subject a fellow applies to teach in), and assessment (i.e., an all-day interview comprised of both individual and group exercises) before an offer is awarded. In preparation for the two-year training, fellows have to participate in two additional pre-training components. Prior to the start of school, teacher-leaders must complete a 5-week

online preservice program and an 8-week virtual summer training program. Through the Virtual Teacher Leadership Academy, these teacher-leaders run a 3-week Virtual Student Leadership Camp, which leverages change-based learning (which is linked with competency-based and inquiry-oriented learning, described elsewhere in this note). During the summer training programs, fellows gain classroom experience by teaching summer classes. After that training is complete, fellows are matched with schools based on community needs and their skillset. Ongoing coaching and support are provided to fellows through the program. This includes one-on-one feedback and support.

Benefits to participating teachers. In addition to the education mission of the program, Teach For Armenia provides expanded opportunities to program fellows. They partner with various local universities to offer a free-of-charge Master's in Pedagogy to their teacher-leaders.

Program reach. To date, five cohorts have been placed in underserved communities across seven regions of Armenia, including Armavir, Aragatsotn, Gegharkunik, Lori, and Tavush, Shirak, and Kotayk. There are 80 alumni and 120 current program teachers. The program has reached over 14,000 students in over 100 schools.

Source: Teach For Armenia, 2020.

Teacher Salary

Total education spending in Armenia is low, both compared to other countries in the ECA region and compared to the OECD and EU averages. But Armenia also has the highest share of education expenditure going toward teacher compensation in the region. Armenia spends 2.8 percent of its GDP on education expenditures. At the same time, 82 percent of Armenia's education expenditure goes toward salaries, the highest share dedicated to teacher compensation in the ECA region; the share is 69 percent for both the OECD average and for other middle-income countries in the ECA region (Figure 2-6).

Teachers' salaries are very important, having a direct impact on decisions to enroll in teacher education, to become a teacher, to return to the teaching profession after a career interruption, and/or to remain a teacher. In general, the higher the salaries, the fewer the people who choose to leave the profession (OECD, 2019). In most countries, the salaries of teachers and school principals increase with experience and the level of education at which they teach. However, making education systems more efficient and making their effectiveness sustainable also requires investing more in other services as well, such as food and transport (depending on context and need), necessary sup-

Total education spending in Armenia is low, both compared to other countries in the ECA region and compared to the OECD and EU averages. But Armenia also has the highest share of education expenditure going toward teacher compensation in the region

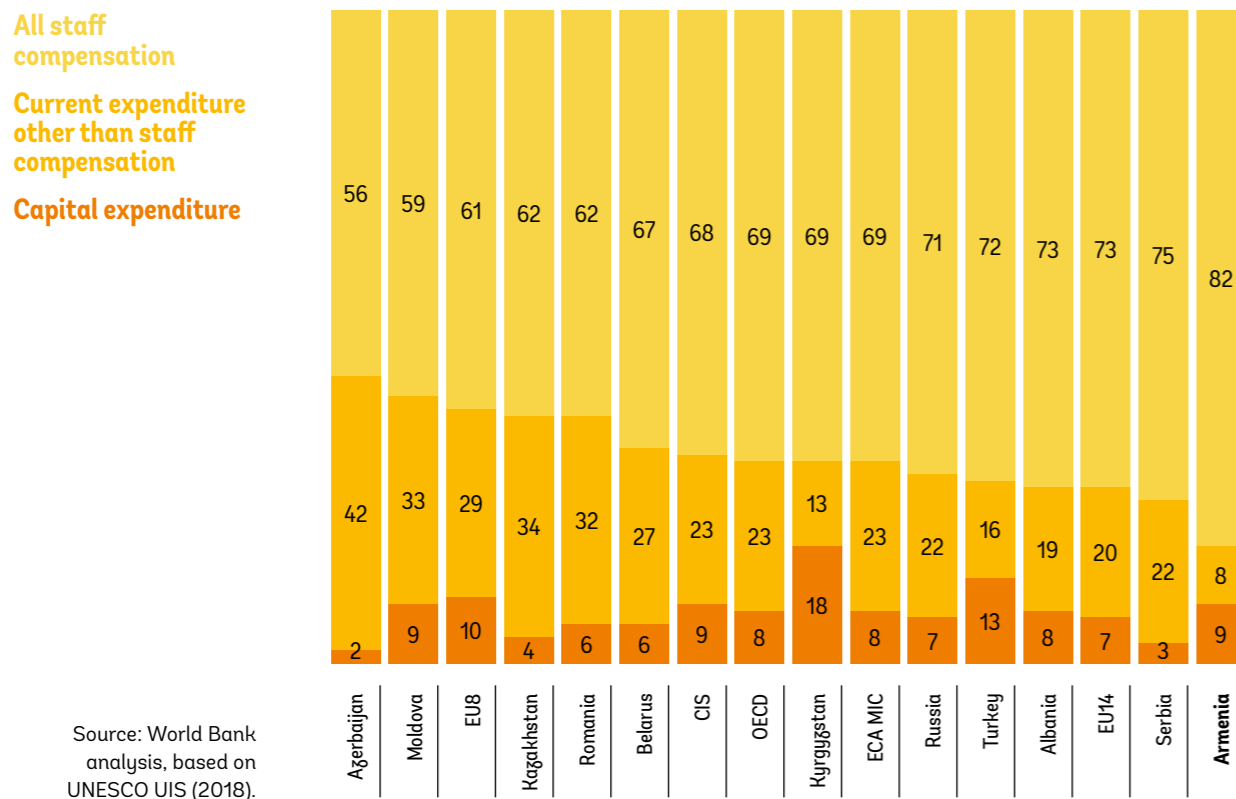
plies, student and teacher instructional support, and educational innovations to make the effectiveness of education systems sustainable.

A straightforward way of comparing the pay of teachers across countries is to look at their salaries in relation to average income per person (GDP per capita). This is a measure of how well off a teacher is in comparison to the average inhabitant for a given country, because GDP provides a good proxy for the overall cost of living in a country. In most OECD countries, an average teacher earns somewhere between 75 percent and 150 percent of GDP per capita.¹⁶ However, most teachers across the world get paid less than the local average living expenses, in goods and services (Sandefur, 2018). Armenian teachers earn around 66 percent of GDP per capita, and this means their earnings put them 34 percentage points below the average living standard in the country (Figure 2-7). As a comparison, this share was calculated for Georgia and Romania (2018 levels) in addition to consolidating it with previous data on other countries. Armenia is in a similar situation to Georgia. Overall, there is wide variation among countries, with higher-income countries having higher shares. In countries that have good education systems or have education systems that have substantially improved in the last few years—like Germany, Portugal, and South Korea—teachers are part of the middle-income class and their salaries are 1.5 times higher than GDP per capita.

Within Armenia, teacher salaries are above the minimum wage and above the poverty line but below the average wages for all professions in the country. Armenia's average annual teacher salary is 1,332,735 Armenian drams (around \$2,765.00), while a person is "poor" under the official definition if his or her monthly consumption (the amount spent) is

¹⁶ OECD's 2019 *Education at a Glance* (OECD, 2019) notes that between 2005 and 2018, on average across OECD countries and economies with available data, statutory salaries of teachers with 15 years of experience and most prevalent qualifications increased by 10% at the primary level, 9% at the lower secondary level (general programmes) and by 6% at upper secondary level (general programmes).

Figure 2-6. Education Expenditure Composition by Nature (percent), ECA Countries and Middle-Income Comparators, 2015 or latest



less than AMD 42,621 (\$89.50).¹⁷ Teachers' salaries are well above that. However, overall education sector salaries are lower compared to the average for all economic sectors, and teacher salaries specifically are on the lower end among all education salaries (Figure 2-8).

The average monthly teacher salary in Armenia fluctuates mostly by gender, by age, and teacher tenure. The average monthly salary for all teachers in Armenia was reported as 107,000 drams (\$223). Female teachers have lower average monthly earnings (and this difference is statistically significant): they earn slightly below the national average, while male teachers are above it. Younger teachers earn less, especially those under age 30. In terms of tenure, the more experience a teacher has, the higher the salary, until teachers hit the 30+ years tenure mark.

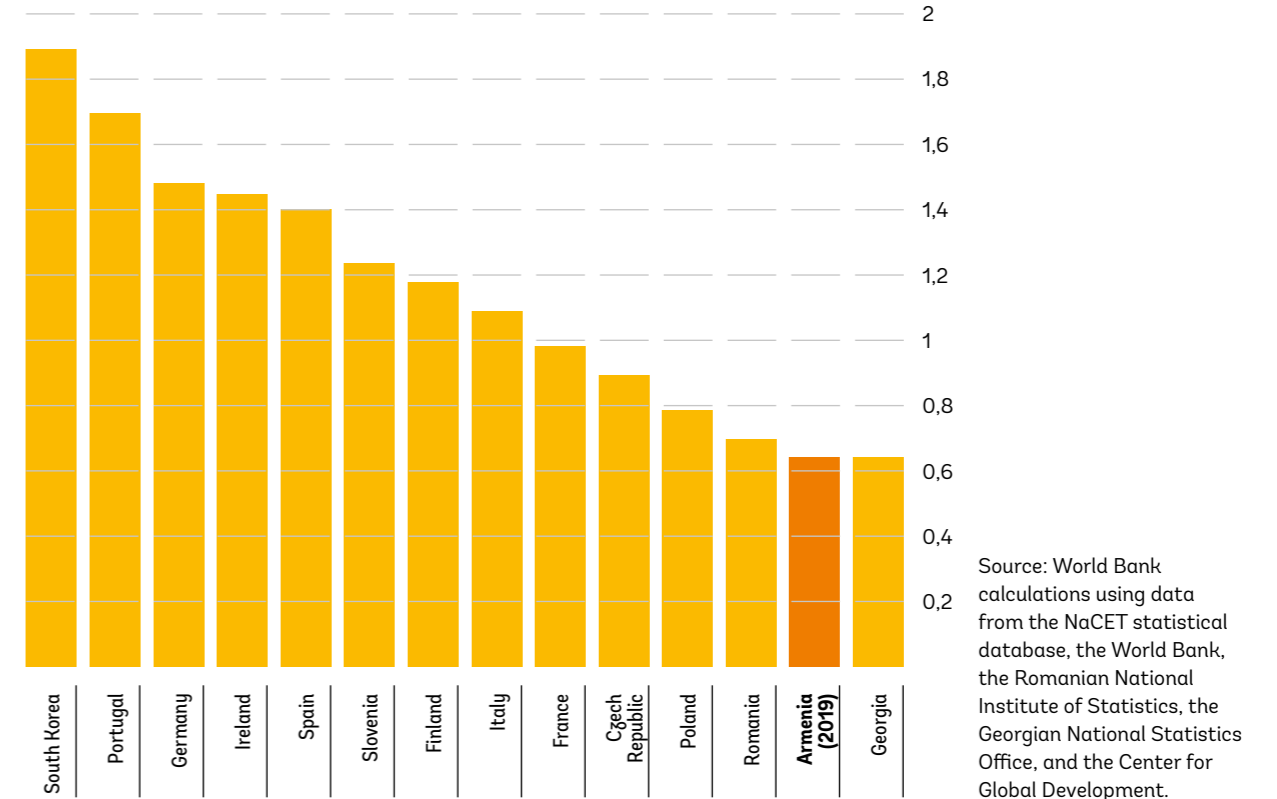
¹⁷ According to the methodology of the National Statistical Service (NSS) database, poverty in Armenia is determined by consumption (expense) rather than income level. The poverty level is presented by three levels: upper, lower, and extreme poverty. "Very poor" denotes a person whose consumption does not exceed AMD 35,071 (\$73.60), while "extremely poor" means a person who has consumed less than AMD 24,827 (\$52.10).

Lastly, those teaching higher grades earn more than those teaching lower grades (Figure 2-9).

Teachers commonly engage in private tutoring to supplement their income, which can create inequalities.¹⁸ Private tutoring is not a new phenomenon in Armenia and the main driver behind it is the belief that the public education system cannot prepare students for competitive university entrance examinations (Kobakhidze, 2018). The discrepancy between school curriculum and requirements for entrance examinations, in addition to low teacher wages, also plays a role in the widespread use of private tutoring (Milovanovitch, 2016). About 60 percent of students in Armenia who are applying for university examinations receive private tutoring. Private tutoring is more prevalent in Yerevan, with about 56.2 percent of students participating in it, compared to 38.3 percent of students in the rest of the country (Milovanovitch, 2016). Students whose families can afford to pay for tutoring often turn to this method of supplemental education; the challenge with

¹⁸ No data is available on this supplemental income.

Figure 2-7. Teacher Salary as a Multiple of Per-Capita GDP, Armenia and Comparators



Note: Data for Romania and Georgia is from 2018. Data for Armenia is from 2019. For the remaining countries it is from 2009, as calculated by the Center for Global Development.

Figure 2-8. Trends and Comparison of Nominal Monthly Labor Income in Armenia, 2013-2020

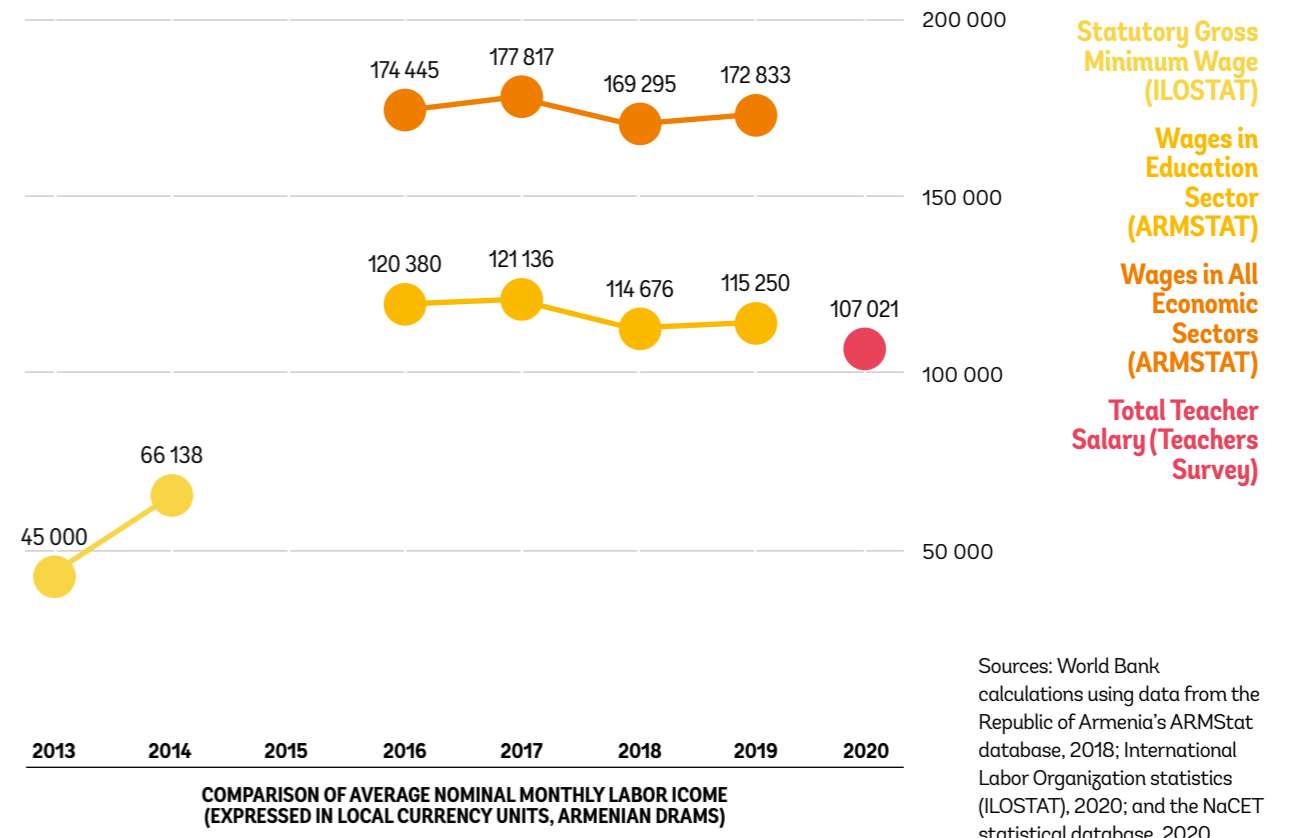
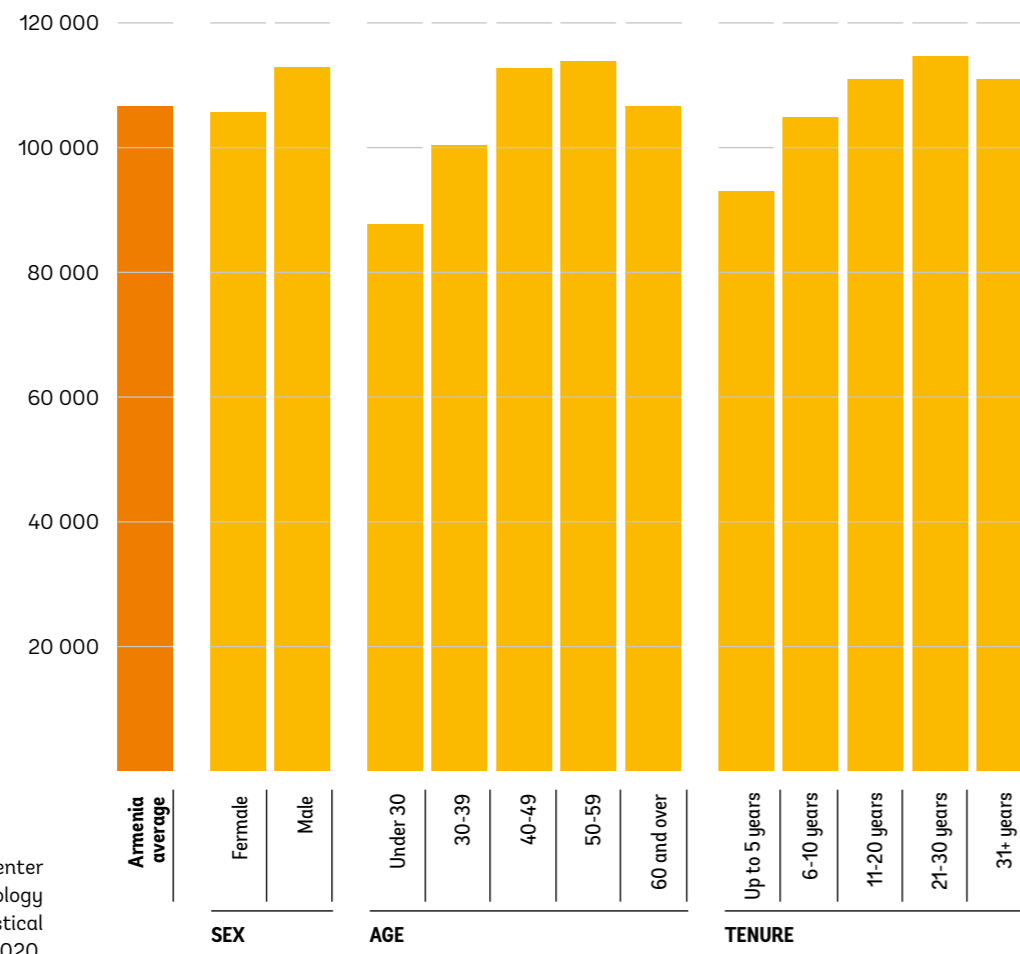


Figure 2-9. Teacher Salaries by Characteristics: Gender, Age, and Tenure (in Armenian drams)



Source: National Center for Education Technology (NaCET) Statistical Database, 2020.

Note: Total salary includes base salary as a teacher, salary in another position, plus bonus salary as a teacher. Salaries at the extremes of the distribution are trimmed using values of percentiles 0.5 and 99.5. The salary data used here was collected before the present academic year started in September 2019. In September 2019, the Ministry allocated additional funds from the budget and increased teacher salaries by 10 percent. The measure has applied to a total of 38,000 teachers.

this is that it leads to growing inequity between students who can afford tutoring and those who cannot (Belyavina, 2010). Teachers are the major providers of tutoring, which is a way for them to supplement their income and earnings. Private tutoring leads to student absenteeism (especially in the last year of high school), lowering standards of student achievement, and under-teaching (Milovanovitch, 2016). It is not commercialized or regulated, it is not mentioned in existing policy or policy discourse, and there is no documented code of conduct for teachers who participate in tutoring (Kobakhidze, 2018).

Summary: This section presented a stock-taking of the number of teachers and their regional distribution, teacher demographics, teacher educational background and experience, teacher professional development, tenure and salaries nationally, and

specifically in Yerevan and Tavush as comparative urban and rural areas. The analysis suggests that: (1) Armenia has an older and predominantly female teacher population; (2) only a small portion of current teachers in Armenia graduated after the year 2011; (3) around 17 percent of current teachers in Armenia studied to become a teacher as opposed to other fields such as life sciences, humanities, languages, etc.; (4) there are marked regional differences in the shares of teachers that are least experienced and most experienced; (5) less than half of teachers in Armenia say that they received training after the year 2016, while the rest received training before that date; (6) the average monthly teacher salary in Armenia fluctuates mostly by gender, age, and teacher tenure. Armenian teacher salaries are above the minimum wage, above the poverty line but below the average wage for all professions in the country.

Gohar's Path to Teaching

At the age of 16, Gohar was admitted to Yerevan State Pedagogical Institute with a scholarship. She was an ambitious student, eager to study chemistry and earn her teaching qualifications. Her mother was a well-respected and admired Armenian language teacher, and her mother's path inspired Gohar to pursue a career as a teacher.

After five years of study, Gohar graduated with honors and, soon after, began teaching. From her pre-service training, she felt prepared to teach. At her school, she enjoyed working among the highly regarded community of teachers who were constantly engaging in both social and professional dialogue throughout the day. For Gohar, her school was vibrant, and her students were ready to learn.





3

**Spotlight on Math
and Science
Teachers: TIMSS
2015 Analysis**

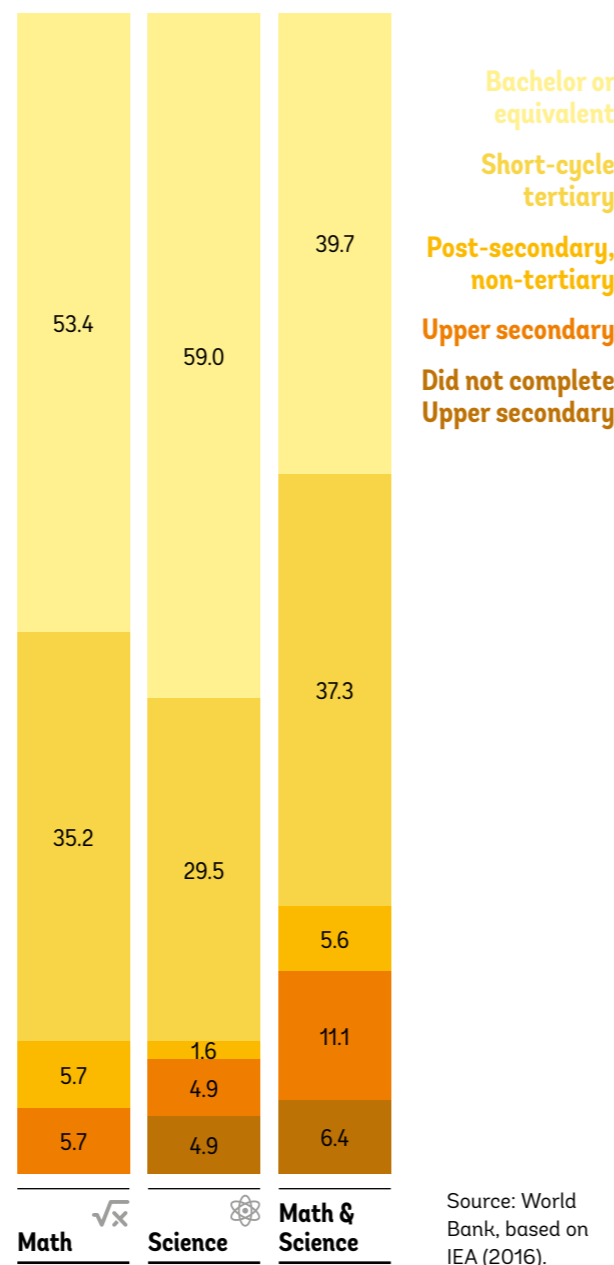
A highly relevant data source for teachers in Armenia is the Trends in International Mathematics and Science Study (TIMSS). Through TIMSS, it is possible to gather information on the overall profile of teachers of 4th and 9th grade students, their views of a wide range of topics and their professional development patterns. TIMSS provides reliable and timely data on the mathematics and science achievement of students compared to that of students in other countries. In addition, TIMSS conducts surveys with teachers and students on issues related to learning and teaching. The most recent TIMSS data collection for Armenia was in 2015.¹⁹

This section is organized as follows. First it provides an educational profile of math and science teachers in grades 4 and 9. Second, it interviews teachers' job satisfaction and motivation. Third, it analyzes the school environment, including teaching perceptions and practices, followed by a discussion of teachers' relationship with school management. It concludes with a look at school resources.

Educational Profile of Math and Science Teachers

Teachers in Armenia are highly educated. About 89 percent of 4th grade math teachers in Armenia have at least a bachelor's degree (BA), and the rest have more than a high school education. More than half of 4th grade math teachers have a graduate degree. The share of 4th grade science teachers with a graduate degree is 59 percent. For those teaching math and science topics together, the educational attainment levels are still high: 77 percent have at least a BA (Figure 3-1).

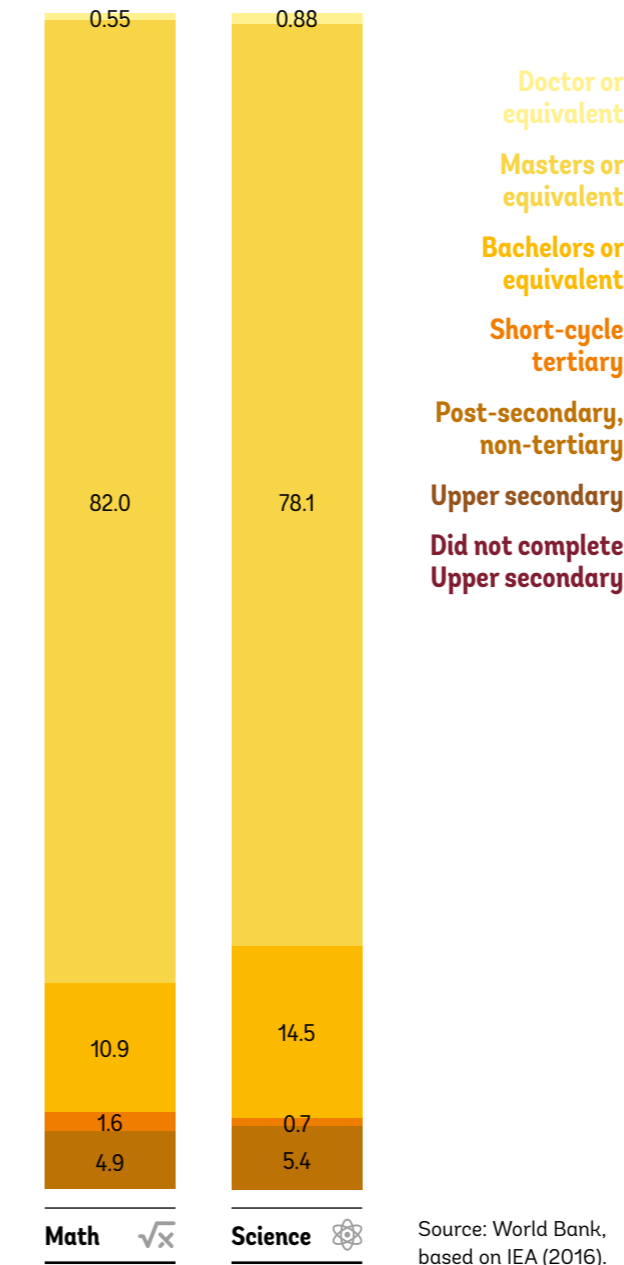
Figure 3-1. Math and Science Teachers by Level of Formal Education Completed, 4th Grade (percent)



Armenian 4th and 9th grade math and science teachers have higher educational attainment compared to the international average.²⁰ Remarkably, 82 percent of 9th grade math teachers and 78 percent of 9th grade science teachers in Armenia have a graduate degree (masters or equivalent) (Figure 3-2).

²⁰ The TIMSS overall international average for share of teachers that completed at least a BA diploma is 84 percent for 4th grade math teachers and 85 percent for 4th grade science teachers. In the 8th/9th grade, the international TIMSS average is about 93 percent of math or science teachers have at least a BA diploma.

Figure 3-2. Math and Science Teachers by Level of Education Attained, 9th Grade (percent)



teachers and 53 percent of science teachers have very high or high expectations of their students. These expectations shift as students age, from being higher in science than in math during the 4th grade to being lower in science than in math in the 9th grade. Lowered expectations for higher grades may suggest issues with classroom management, content relevance, or delivery, which could lead to adverse learning outcomes.

Teachers in Armenia have a high degree of self-confidence in their ability to implement the curriculum despite finding it difficult to keep up with changes in it, which points to the need for more effective professional development trainings. In order to unpack the expectations teachers have of students, it would be useful to look at how teaching practices and teachers' workloads are viewed in Armenia, because these may impact teaching and learning quality. This includes how teachers view their ability to deliver lessons and to follow and implement what the curriculum suggests, as well as how heavy they find their workload to be. Almost all the teachers reported a high or very high degree of success in implementing the curriculum (Figure 3-3). Despite high levels of confidence in delivering the lessons as intended, teachers were in agreement that they found it difficult to keep up with the changes to the curriculum, though to varying degrees depending on grade level and subject, as seen in Figure 3-4. This shows that despite teachers' confidence in their ability to deliver the content, they need more time and opportunity to internalize curricular changes, which underlines the need to introduce more timely and effective professional development trainings (in-service).

School Environment: Teaching Expectations, Challenges, and Practices

Since teachers interact directly with students, their perspective may give some clues to improve learning outcomes. Data suggests that 4th grade teachers have higher expectations of their students than 9th grade teachers. Math and science teachers have high or very high expectations of their students (Table 3-1). At the 9th grade level, only 59 percent of math

Table 3-1. Teachers' Expectations for Student Achievement (percent)

	Mathematics		Science		Math & Science
	4 th grade	9 th grade	4 th grade	9 th grade	4 th grade
Very high	11.6	4.7	7.9	4.1	9.2
High	61.6	54.7	69.8	49.2	63.9
Medium	26.7	39.6	22.2	46.5	26.9
Low	0.0	1.0	0.0	0.2	0.0

Source: World Bank, based on IEA (2016).

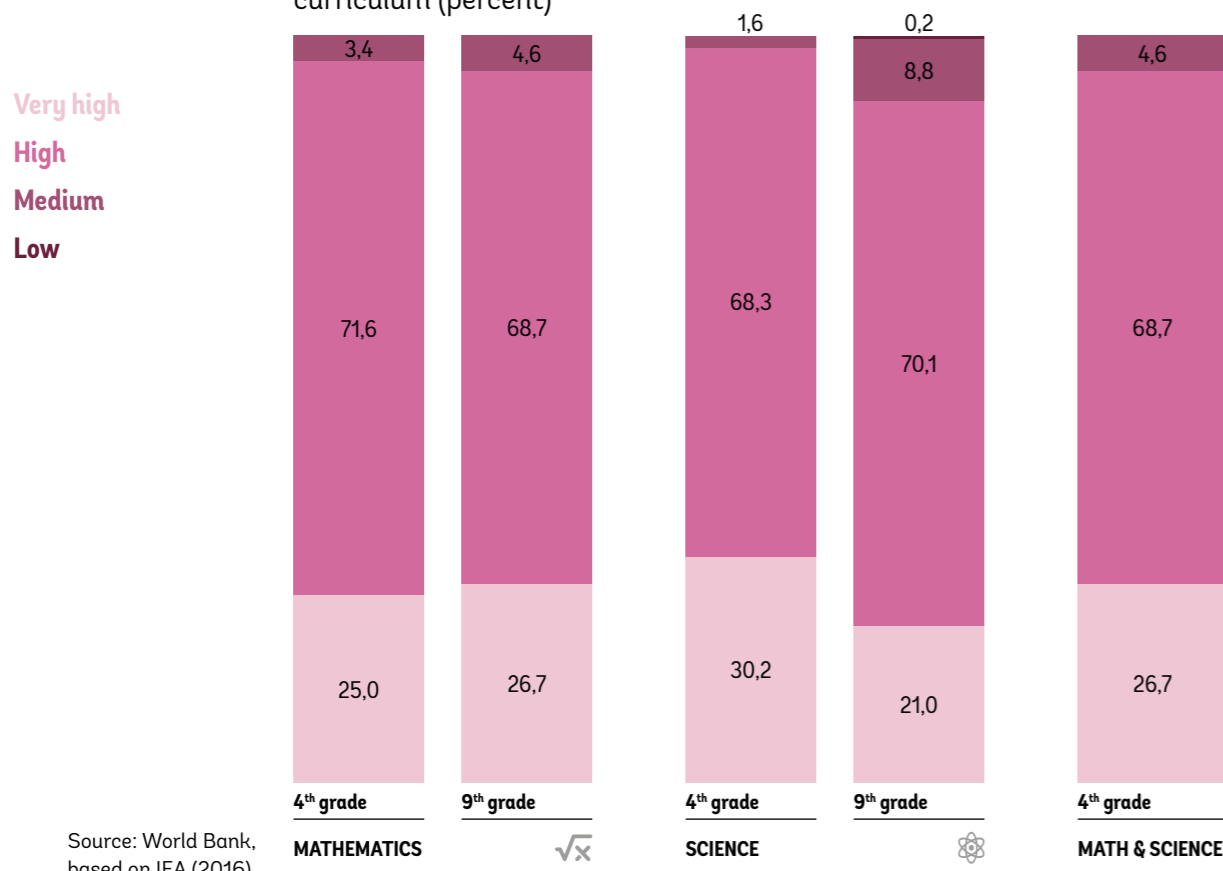
Workload is a significant issue that affects teachers and it is a good indicator of how much support teachers think they need—around half of the teachers in the TIMSS sample reported that they are overloaded with administrative tasks. Around 43 percent of math teachers agreed that they have too many administrative tasks, with 4th grade teachers reporting higher shares—above 50 percent (Figure 3-5). This indicates that almost half of the teaching staff feel that they are overloaded with administrative tasks, such as filling out register books of students’ attendance and performance, entering the same information online, and grading students’ papers on a daily/weekly basis, among others.

Workloads for teaching-related tasks also point to a trend: Teachers believe they have too many students and too much material to cover. Most teachers in all subject areas agreed that they have too many students. The highest percentages agreeing were concentrated among the 4th grade teachers, among whom 79 percent of math teachers and 85 percent of science teachers agreed (either a lot or a little)

that they have too many students (Figure 3-6). Armenia’s primary school class size seems average in comparison to other regions and countries, so it is important to understand whether there may be regional or school-specific issues teachers face in certain contexts (Figure 3-7).

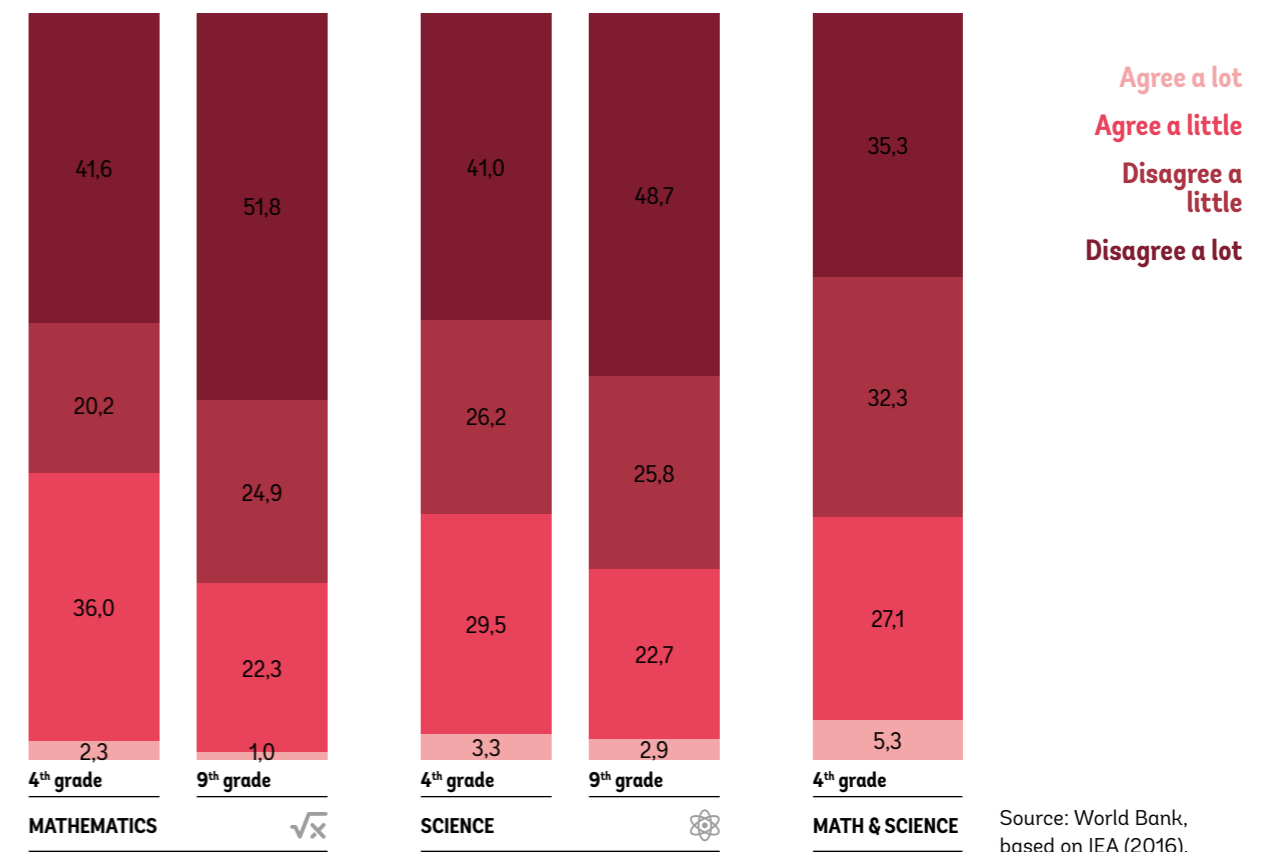
Teachers in Armenia are highly educated and have a high degree of self-confidence in their ability to implement the curriculum despite finding it difficult to keep up with changes in it, which points to the need for more effective professional development trainings

Figure 3-3. Teachers’ degree of success in implementing the school’s curriculum (percent)



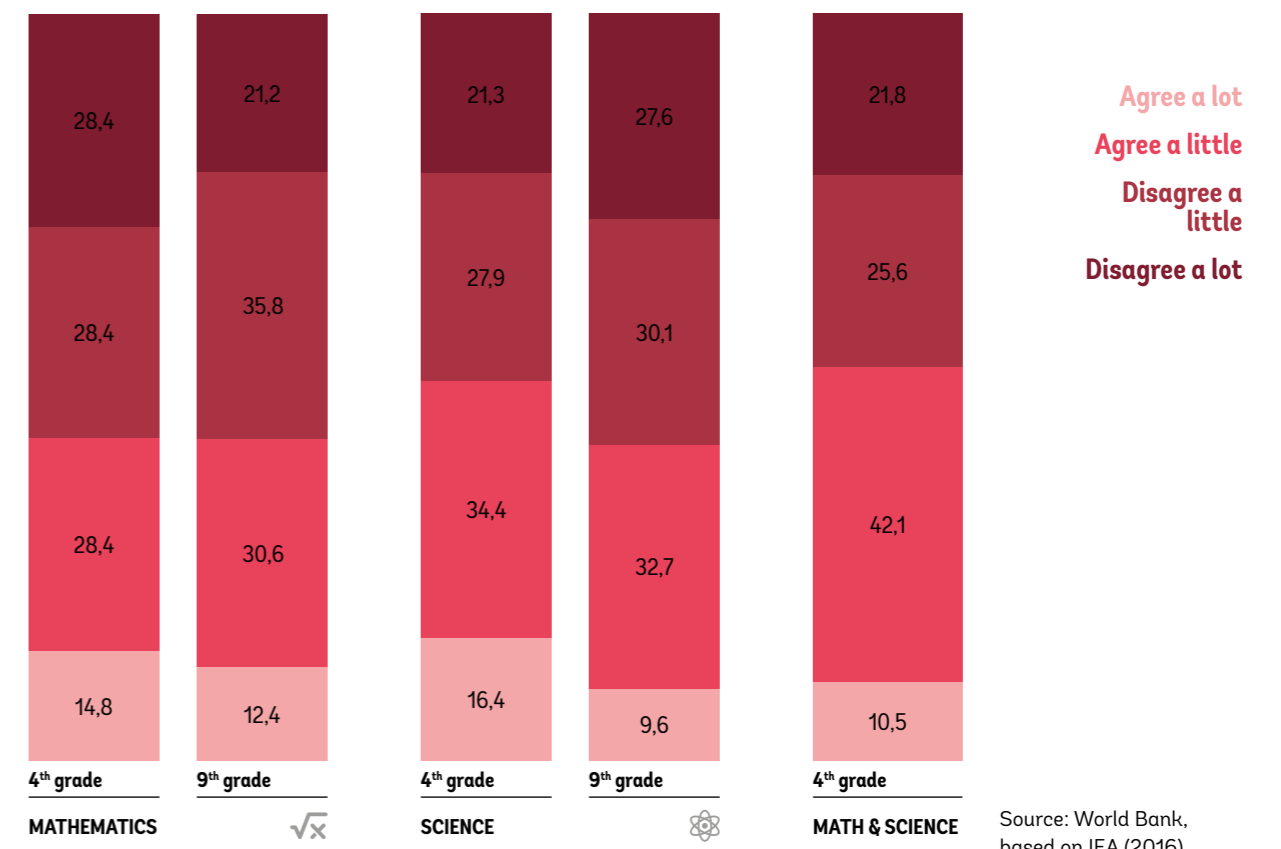
Source: World Bank, based on IEA (2016).

Figure 3-4. Teachers have difficulty keeping up with the changes to the curriculum (percent)



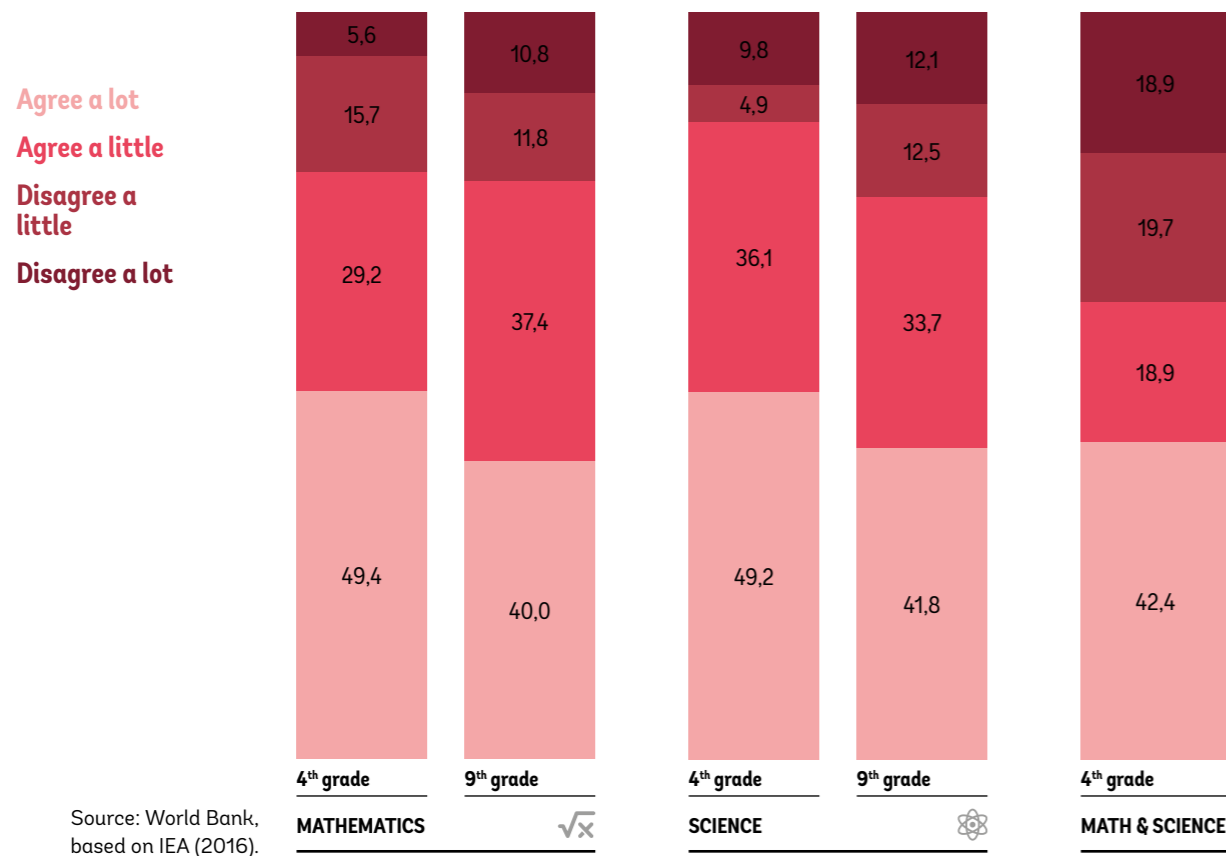
Source: World Bank, based on IEA (2016).

Figure 3-5. Teachers have too many administrative tasks (percent)



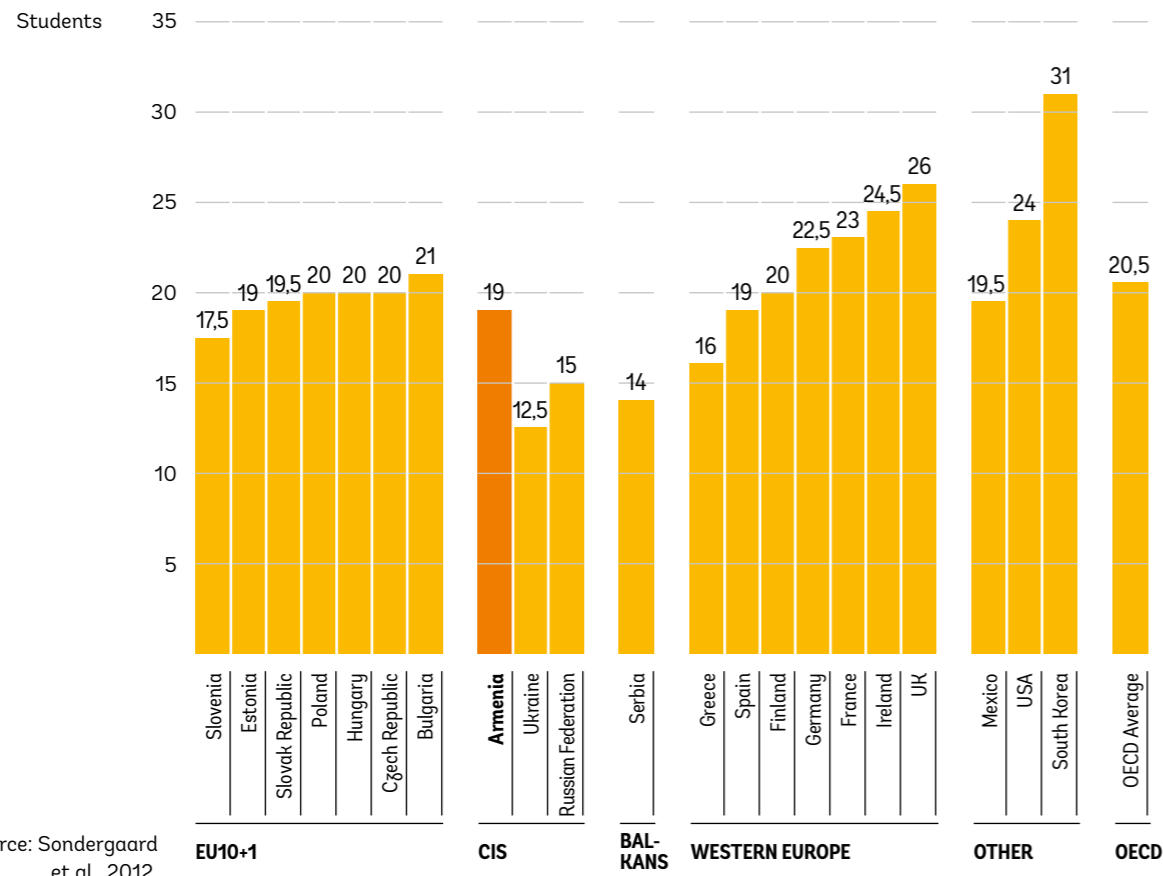
Source: World Bank, based on IEA (2016).

Figure 3-6. Teachers have too many students in the classes (percent)



Source: World Bank, based on IEA (2016).

Figure 3-7. Average Size of Primary School Classes for Selected Countries, Worldwide, Various Years



Source: Sondergaard et al., 2012.



Additionally, most teachers said that they have too much material to cover in class. The most overburdened teachers are the 4th grade science teachers and 9th grade math teachers (Figure 3-8). Overcrowded classes and overloaded teaching materials can be detrimental to the learning of all students, but especially detrimental to students who may be behind the class in terms of comprehension and attention.

In Armenia, teachers spend an average of 22 hours a week teaching in classrooms. This 'teacher norm' indicator represents teaching time, that is, the number of hours spent teaching a group or class of students according to the formal policy in the country, in hours per week. It can be used as a proxy to evaluate the level of in-class workload teachers face in a given country. In comparison to countries of the EU and ECA region, Armenia's teachers spend more time in classroom each week, only trailing behind Russia (Figure 3-9). These long classroom hours leave less space for supporting weaker students or preparing for class.

Workload is a significant issue that affects teachers: Teachers believe they have too many students and too much material to cover

Many teachers feel that they need more time to prepare, and most teachers say they need more time to assist individual students, statements that are all consistent with the loaded content indicator. More than half of all 4th grade teachers agreed that they need more time to prepare for class, and close to half of all 9th grade teachers felt the same way. Figure 3-10 shows that an overwhelming majority of all teachers agree that they need more time to assist individual students so they do not fall behind the class.

Figure 3-8. Teachers have too much material to cover in class (percent)

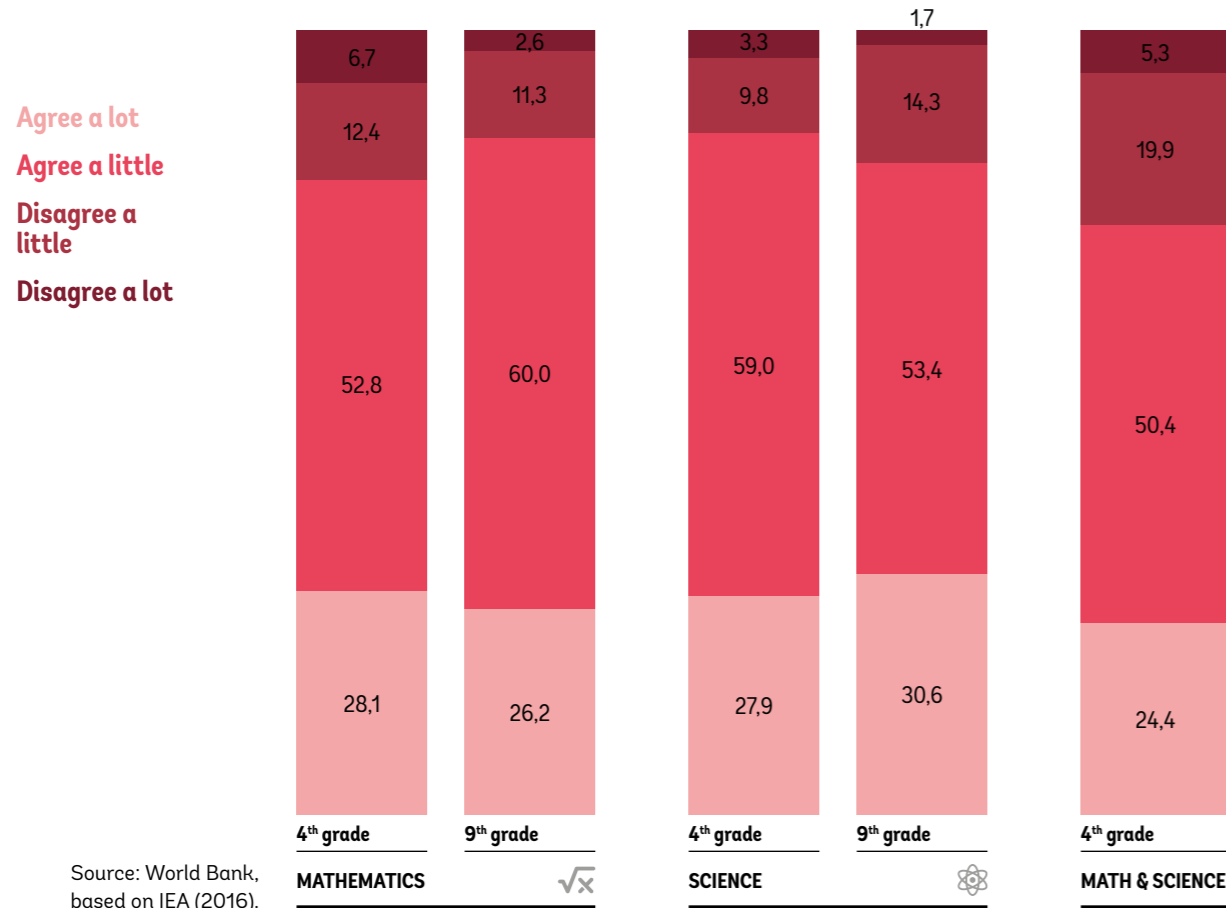


Figure 3-10. Teachers need more time to assist individual students (percent)

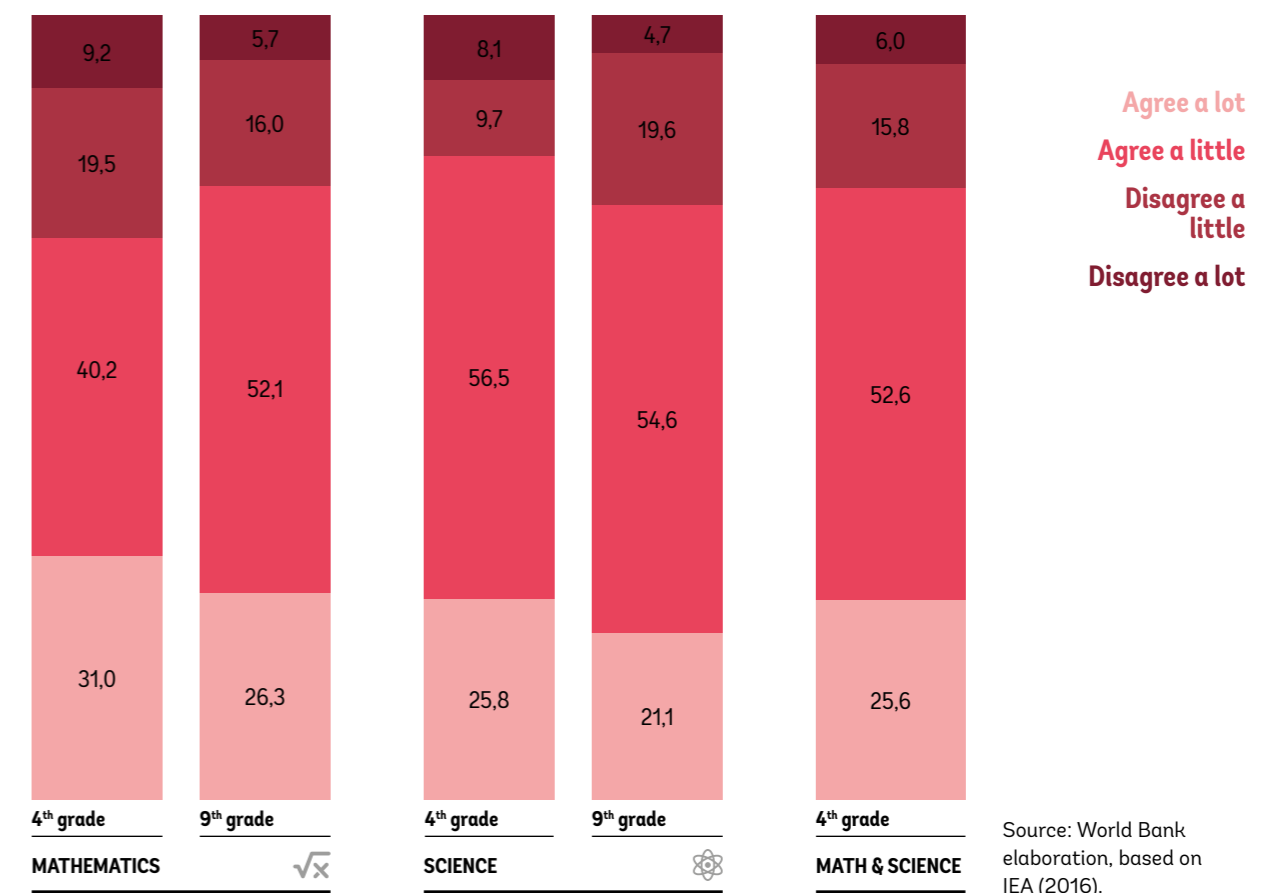
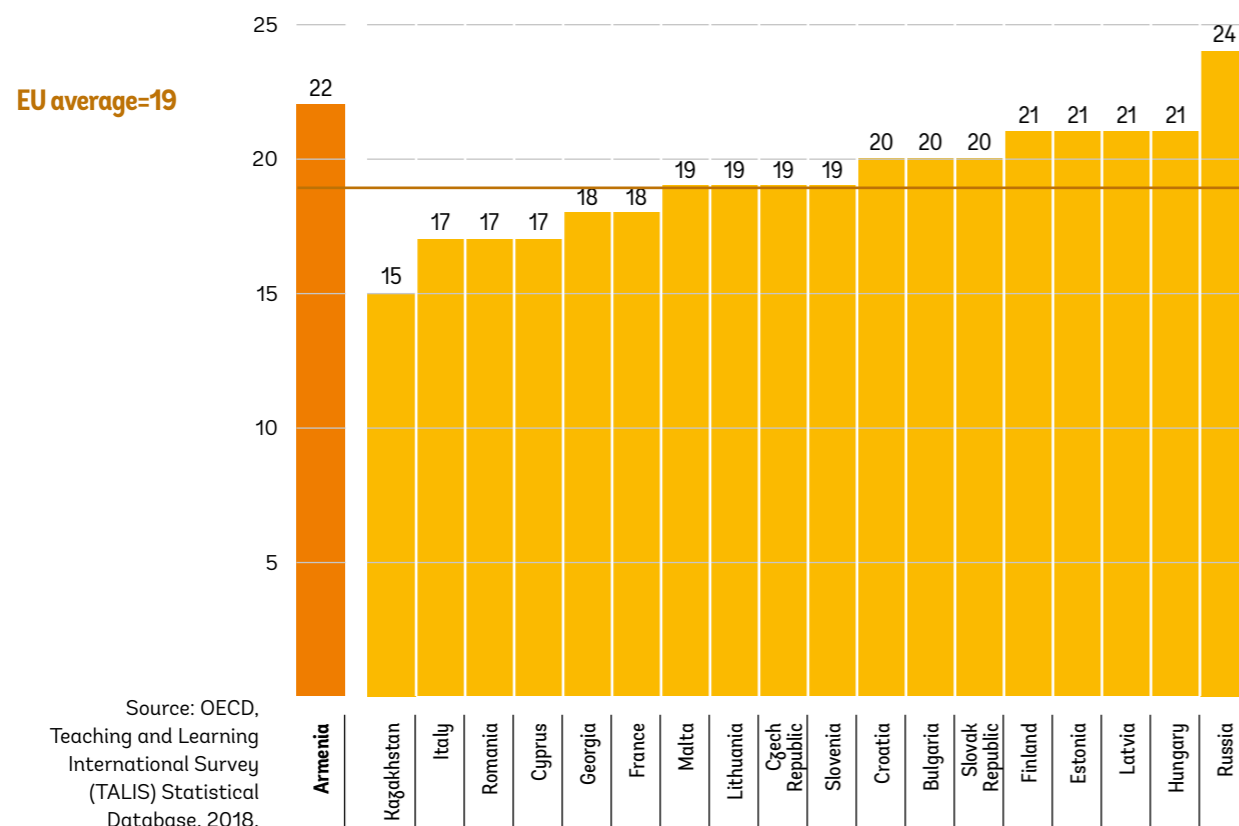


Figure 3-9. Teaching Hours per Week: Norms in Armenia and Select Comparators



Teaching Practices: Collaborations and Relationships

Collaboration among teachers

Teachers of the students in the TIMSS study reported high levels of interaction and collaboration with other teachers in teaching a particular topic, planning and preparing instructional materials, sharing experiences, working together to increase creativity and trying to ensure continuity of teaching. Teaching practices and methods are important indicators of how teaching is planned and implemented in classrooms. Teachers' interactions with their colleagues can make a big difference to boost learning levels and to reduce the stress associated with preparing for classes. Table 3-2 describes how frequently teachers interact with one another to discuss pedagogical practices in a topic. All 4th grade teachers reported interacting with other teachers to discuss particular themes. Math teachers were

more likely to report doing this in higher shares than science teachers. For 9th grade teachers, there is more variation in terms of frequency. Additionally, Table 3-3 shows that teachers collaborate in planning and preparing instructional materials with other teachers. While 9th grade math and science teachers reported lower levels of collaboration than their 4th grade peers, collaboration levels are high overall.

All teachers share teaching experiences with other teachers, but science teachers do it more intensively. Most math teachers visit other classrooms to learn from their peers; only 2 to 3 percent reported not doing this. However, all science teachers visit other classrooms for an exchange of experience.

Lastly, teachers collaborate to ensure continuity in learning, which is critical for student outcomes. Properly conducted within-grade and between-grade subject continuity has the potential to elevate learning levels. This is one of the most challenging tasks that teachers

Table 3-2. Math and Science Teachers Reporting That They “Discuss With Other Teachers How to Teach a Topic” (percent)

	MATHEMATICS		SCIENCE		MATH & SCIENCE
	4 th grade	9 th grade	4 th grade	9 th grade	4 th grade
Very often	32.6	27.8	26.6	24.8	35.3
Often	43.8	52.6	51.6	54.2	51.1
Sometimes	23.6	19.1	21.9	20.3	13.5
Never or almost never	0.0	0.5	0.0	0.7	0.0

Source: World Bank elaboration, based on IEA (2016).

Table 3-3. Math and Science Teachers Reporting That They “Collaborate in Planning and Preparing Instructional Materials With Other Teachers” (percent)

	MATHEMATICS		SCIENCE		MATH & SCIENCE
	4 th grade	9 th grade	4 th grade	9 th grade	4 th grade
Very often	30.7	25.4	24.2	19.4	26.2
Often	56.8	52.9	50.0	55.2	56.2
Sometimes	11.4	21.2	22.6	24.6	17.7
Never or almost never	1.1	0.5	3.2	0.8	0.0

Source: World Bank elaboration, based on IEA (2016).

Table 3-4. Math and Science Teachers Reporting That They “Work Together to Ensure Continuity in Learning” (percent)

	MATHEMATICS		SCIENCE		MATH & SCIENCE
	4 th grade	9 th grade	4 th grade	9 th grade	4 th grade
Very often	17.4	13.9	14.5	13.0	18.9
Often	52.3	51.6	62.9	54.9	62.1
Sometimes	27.9	32.5	22.6	31.5	18.2
Never or almost never	2.3	2.1	0.0	0.7	0.8

Source: World Bank elaboration, based on IEA (2016).

face, especially if curriculum is hard to follow or changes in curriculum are hard to keep up with. In these types of situations, teacher collaboration can have a very positive impact on implementing the curriculum the way it was intended. It also has important implications for teacher productivity and efficiency. Regardless of the grade, teachers surveyed by TIMSS reported high levels of collaboration to ensure continuity in the learning process. There seems to be more intense collaboration among 4th grade teachers than among 9th grade teachers (Table 3-4).

Collaboration between teachers and school management

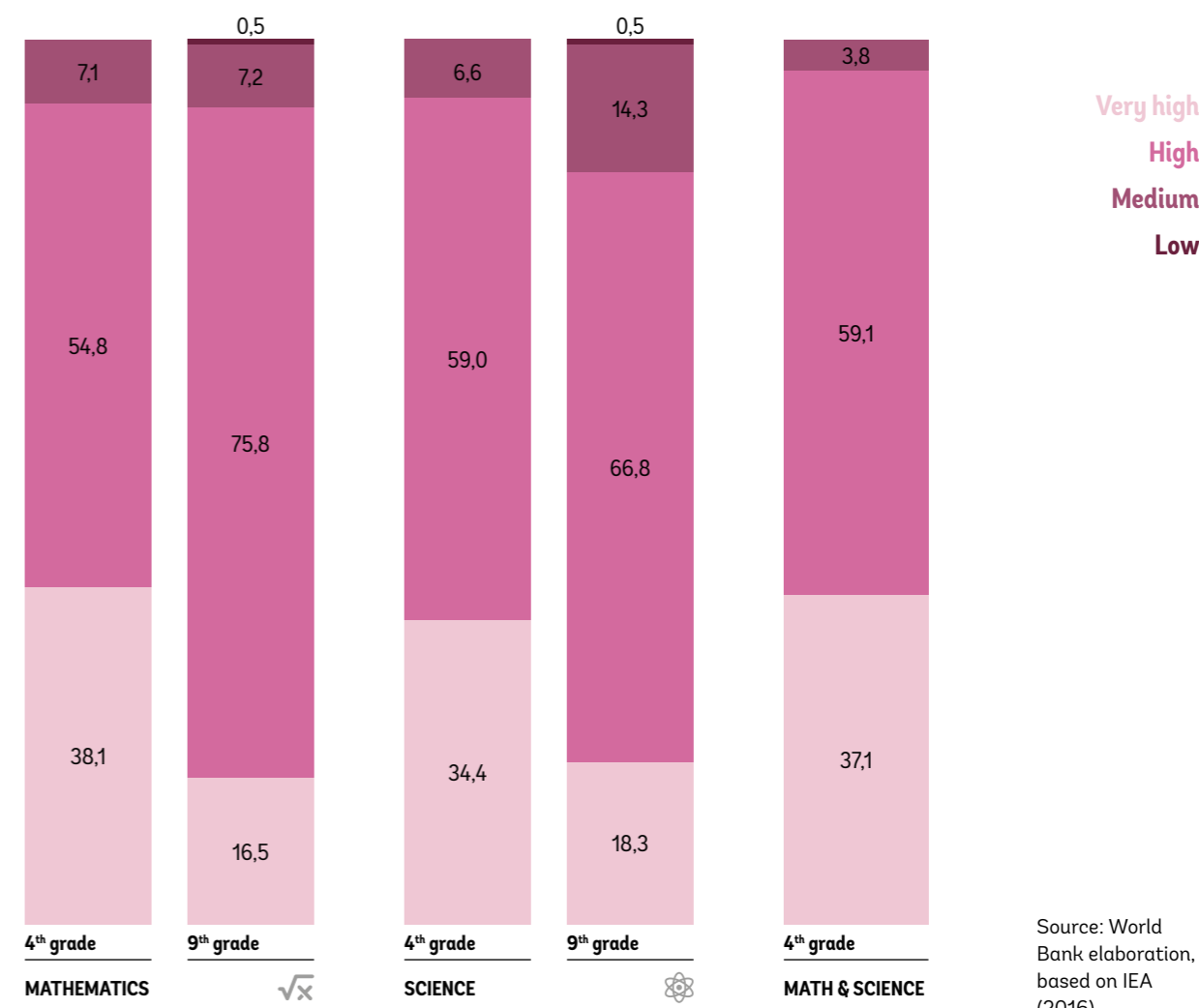
Fourth grade teachers have a higher opinion on how clearly school management conveys educational objectives, and there is a high level of collaboration between teachers and school management at all levels when it comes to planning and delivering instruction. However, there are certain issues with school management’s support for teachers’ professional development, especially at the 4th grade level. Lack of effective leadership in schools has the potential to adversely impact teaching efficiency and learning outcomes. The 2018 *World Development Report* states that “schools with better management have better test scores. Schools vary significantly in management quality, and school leadership plays a crucial role in school performance” (World Bank 2018, p. 148).

One of the key elements of successful management is clear and defined educational objectives for all teachers. Fourth grade math and science teachers have a more favorable opinion on the clarity of their school’s objectives. However, 9th grade teachers do not share this favorable opinion (‘very high’) about the clarity of educational objectives. The gap is around 20 percentage points between grades (Figure 3-11). In addition to conveying educational objectives clearly, one of the most critical features of the relationship between teachers and management is that of collaboration around planning and delivering instruction to students. From this perspective, almost all Armenian teachers reported that they enjoy high levels of collaboration with school management, and there is no significant variation between subjects and grades.

Teachers have high levels of interaction and collaboration with other teachers in teaching a particular topic, planning and preparing instructional materials, sharing experiences, working together to increase creativity and trying to ensure continuity of teaching

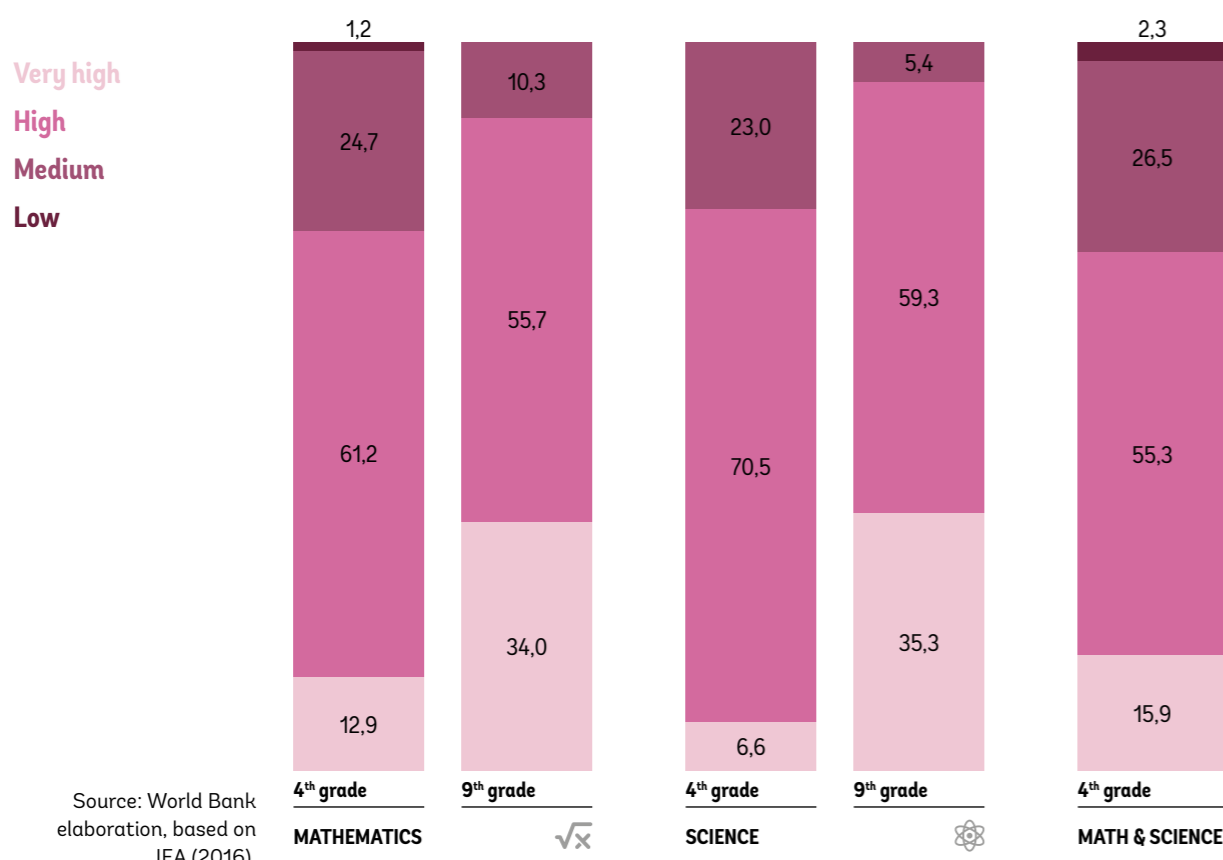
Some teachers report that they do not receive enough support from school leadership when it comes to their professional development. The share of 4th grade teachers that say they receive very high levels of support on this are low. Around one-fourth of all 4th grade teachers reported receiving a ‘medium’ level of support, which is relatively low compared to the other collaboration indicators that this section covered. Ninth grade teachers are more positive about the support they receive in furthering their professional development with support from school leadership, but still around 11 percent of 9th grade math teachers and 5 percent of 9th grade science teachers have an unfavorable opinion (Figure 3-12). This is important because of its linkage with professional development issues, covered at the beginning of this note. It suggests a disconnect between the learning needs of teachers and what is provided.

Figure 3-11. Teachers’ opinion on the clarity of school’s educational objectives (percent)



Source: World Bank elaboration, based on IEA (2016).

Figure 3-12. School leadership’s support for teachers’ professional development (percent)



Source: World Bank elaboration, based on IEA (2016).



TEACH Tool Snapshot—Preliminary Observations for Armenia

TEACH is a classroom observation tool that measures teaching practices in elementary school classrooms aimed at monitoring their effectiveness. This snapshot complements the teacher analysis contained in this report by drawing on the TEACH tool to investigate classroom practices and use of instructional materials by teachers in Armenia.

TEACH data recording sessions were underway when the Covid-19 pandemic caused school closures in Armenia in mid-March 2020. As of that date, all TEACH activities have been postponed until further notice. However, the existing data that the TEACH team was able to collect in Armenia might offer a snapshot of classroom practices and teacher experiences. It is important to note that the data used for this exercise is not the complete TEACH data, but a portion of the whole sample. As such, it is not representative and should not be used to make any statistical inferences. The existing data was obtained by coding recordings from five schools and 15 teachers teaching different subjects in different grades: three schools in Yerevan and two schools in Tavush in grades 1 to 6. The date was collected in January and February 2020.

Observed Strengths of Teachers’ Classroom Practices

Teachers are effective at maximizing time on learning by providing students with a learning activity, such as developing group or independent work, or attending to the teachers’ instructions. Most teachers create a supportive learning environment by treating all students respectfully and frequently using positive language when interacting with them. Teachers are good at establishing clear behavioral expectations, which allows students to understand the rules to follow during the lesson; and they provide an explanation of content by giving clear definitions of concepts, using graphic representation, and providing specific instructions for the activities, among other strategies. Also, teachers provide students with higher-order tasks that allow them to develop their thinking skills by identifying and analyzing information, applying a technique learned during a similar task or comparing data. In

addition, students are provided with opportunities to take on roles, like going to the board or sharing anecdotes related to the content. Lastly, teachers work to promote students’ interpersonal skills, such as empathy and emotional regulation, by asking them to think about others, wait for their turn, or understand other people’s feelings.

Potential Areas of Practice Improvement

One potential improvement would be to develop strategies to ensure that students stay engaged during the lesson, as it was common to see some students who seemed distracted, engaging in other activities. Even though there is no evidence of implicit gender bias, teachers could create opportunities to challenge gender stereotypes by talking about female characters appearing in professions typically portrayed by male figures. To promote positive behavior in the classroom, teachers could focus more on the expected behavior to redirect students instead of penalizing their misbehavior by reframing their language when they see misbehavior (“Let’s remember that we need to raise our hands before answering”) instead of acknowledging what they are doing wrong (“Don’t talk. It’s not your turn”). To promote students’ comprehension, teachers may need to clearly state a specific learning objective (“We are going to study a topic today. At the end of the lesson, you’ll learn all the monetary units of Armenia”). Also, to make learning more meaningful, teachers could use examples from students’ daily lives to illustrate the content. Teachers could also provide students with additional opportunities to learn by adjusting the pace of the lesson in real time during class (e.g initiating a back and forth exchange with students when they have a misconception) and by using more open-ended questions. Additionally, teachers can foster perseverance by acknowledging students’ efforts instead of just praising their results. Finally, to encourage collaboration, teachers may give students more opportunities to complete group activities where they could learn to work together towards a common goal or share materials.

Source: World Bank, 2019. See www.worldbank.org/en/topic/education/brief/teach-helping-countries-track-and-improve-teaching-quality

School Resources

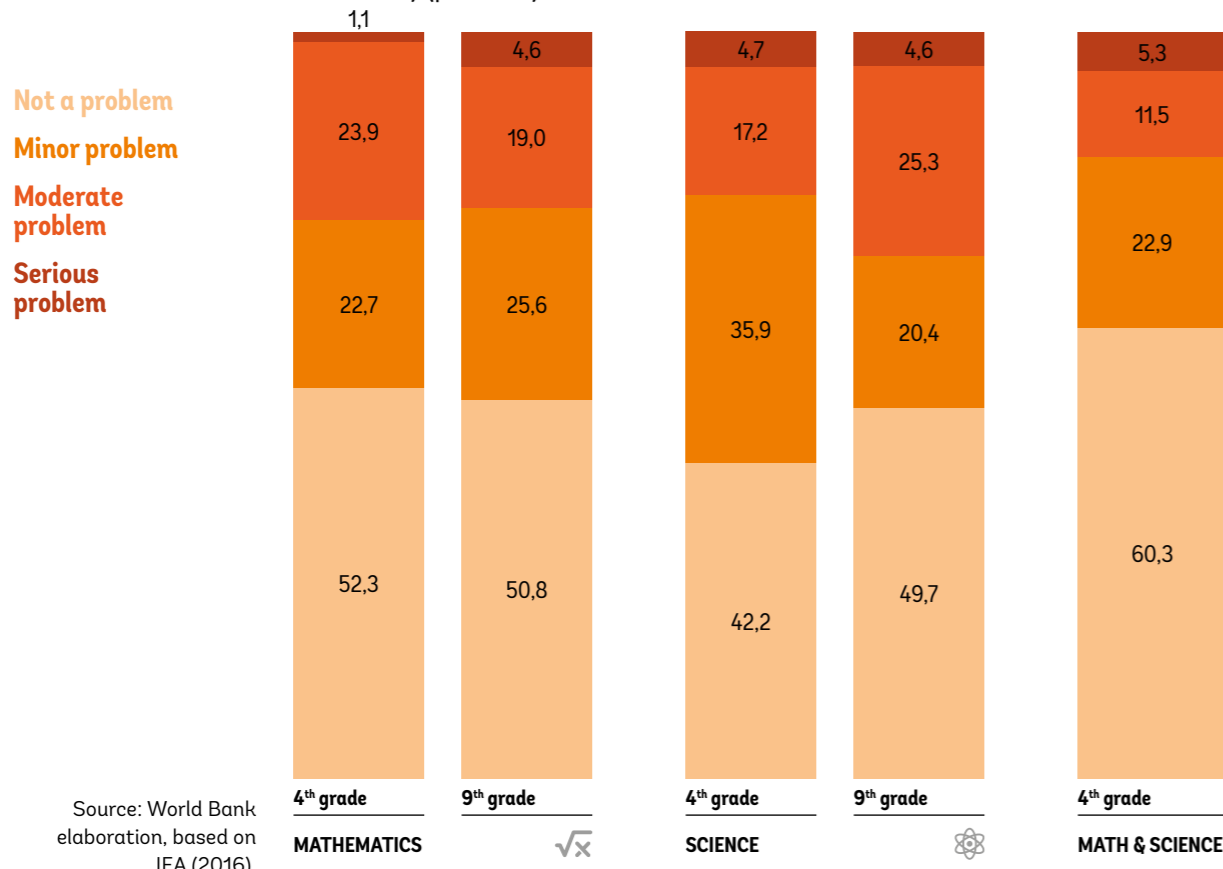
Having the necessary workspace and teaching materials/resources is essential for teachers to implement their teaching objectives. In Armenia, the availability of learning tools does not seem to be a problem; however, it is necessary to pay more attention to areas such as use of technology. In both grades, around 70 percent of teachers reported that adequate workspace is not a problem or is a minor one (Figure 3-13). Concerning the severity of not having adequate instructional materials and supplies in their current school, science teachers in 9th grade seem to face the biggest challenge (Figure 3-14).

Increasingly, educational technology is becoming an important and relevant part of instruction and learning. The use of information and communication technologies in education can potentially play a crucial role in providing new and innovative forms of support to teachers

and students, improving the learning process among all students. For example, when implemented correctly, software in the classroom can allow students to learn at their own pace, and accessible tablets or laptops can help children develop important digital skills and computer know-how that they will need to succeed in a knowledge-based economy.

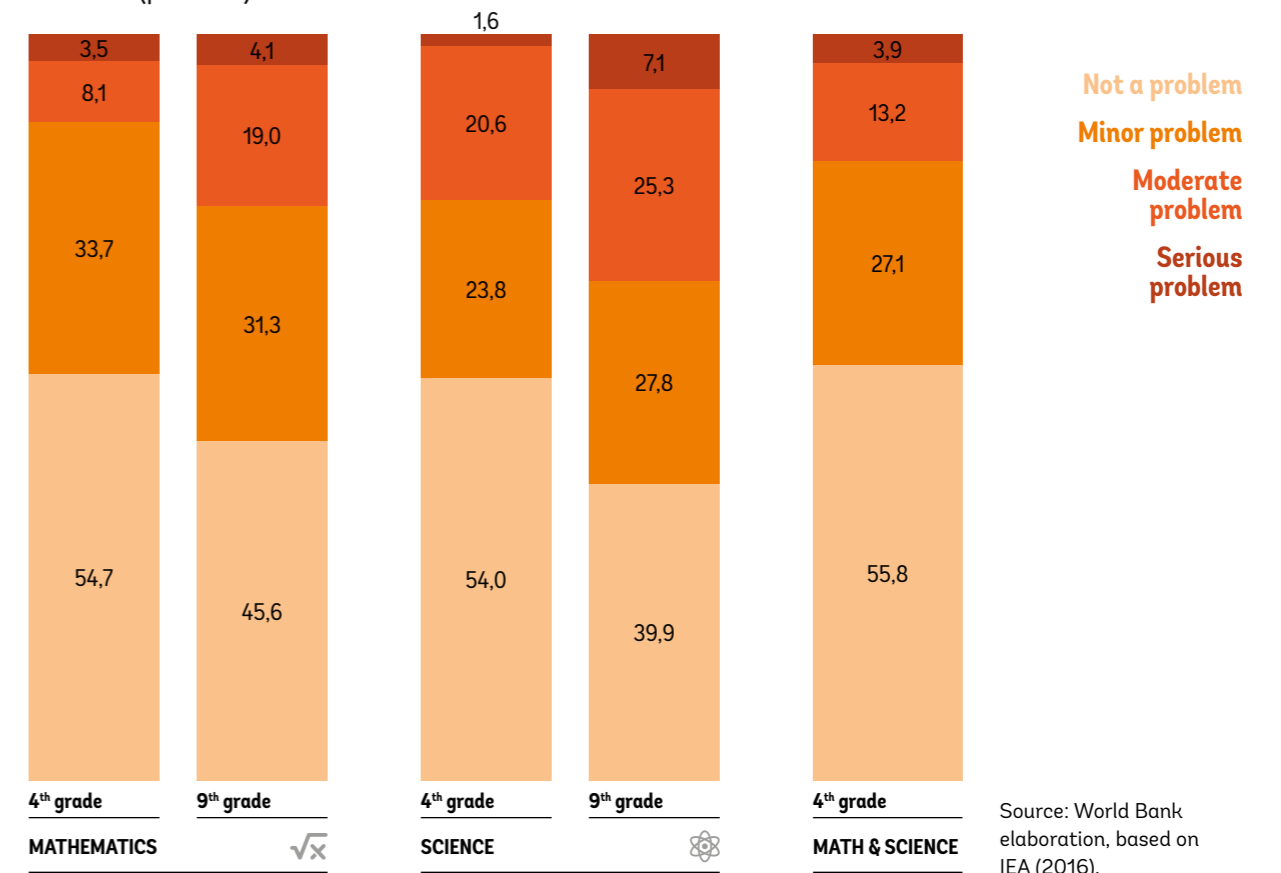
That said, many potential related challenges, such as high costs, increased burdens on teachers, and implementation difficulties, are well known and documented (World Bank, 2018b). Effective use of accessible education technologies is now more in the forefront than ever, due to the Covid-19 pandemic, which has caused widespread school closings globally. The MoESCS has been taking meaningful steps to improve the delivery of and access to educational technologies both for pandemic response and for potential benefits to reach remote

Figure 3-13. Severity of Problem of Teachers Not Having Adequate Work Space (e.g., for Preparation, Collaboration, or Meeting With Students) (percent)



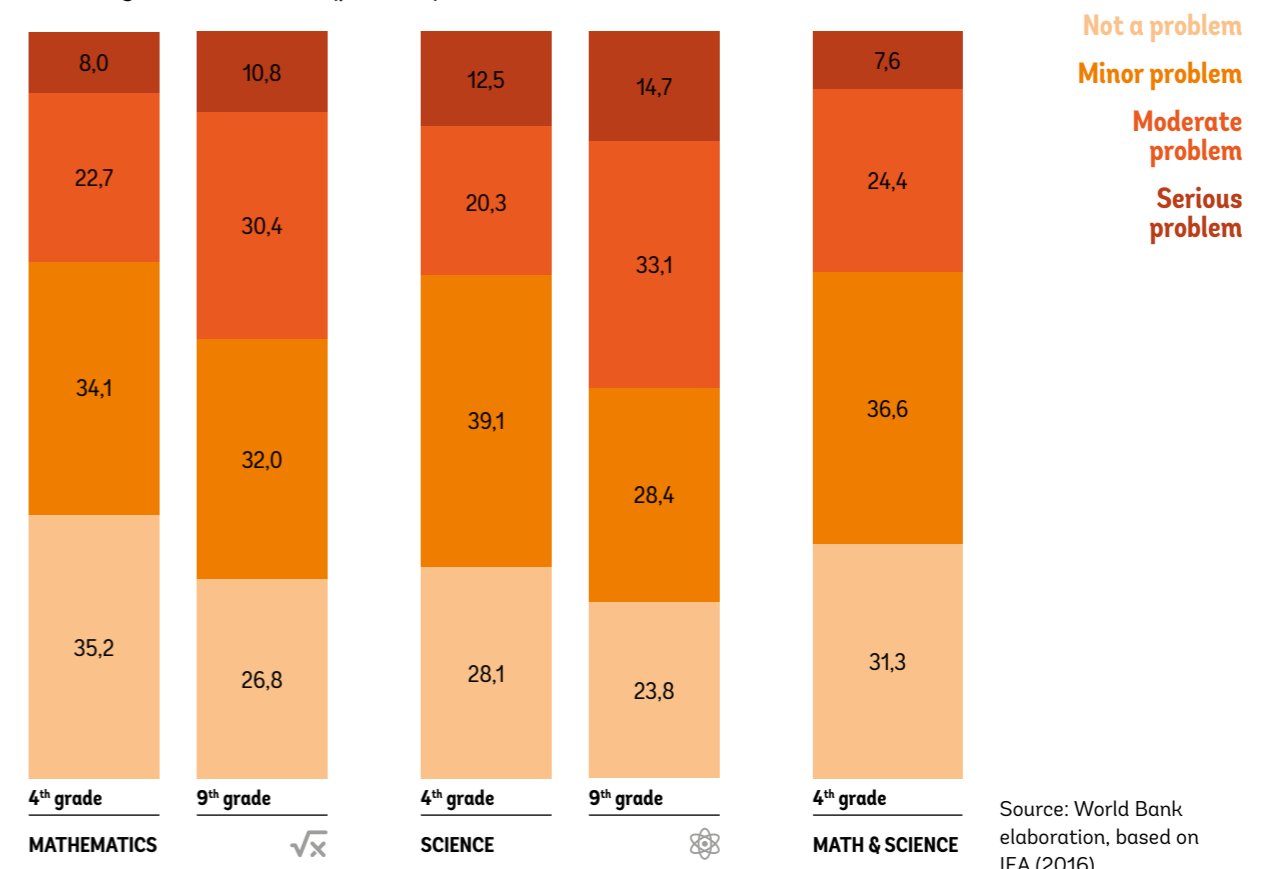
Source: World Bank elaboration, based on IEA (2016).

Figure 3-14. Severity of Teachers Not Having Adequate Instructional Materials (percent)



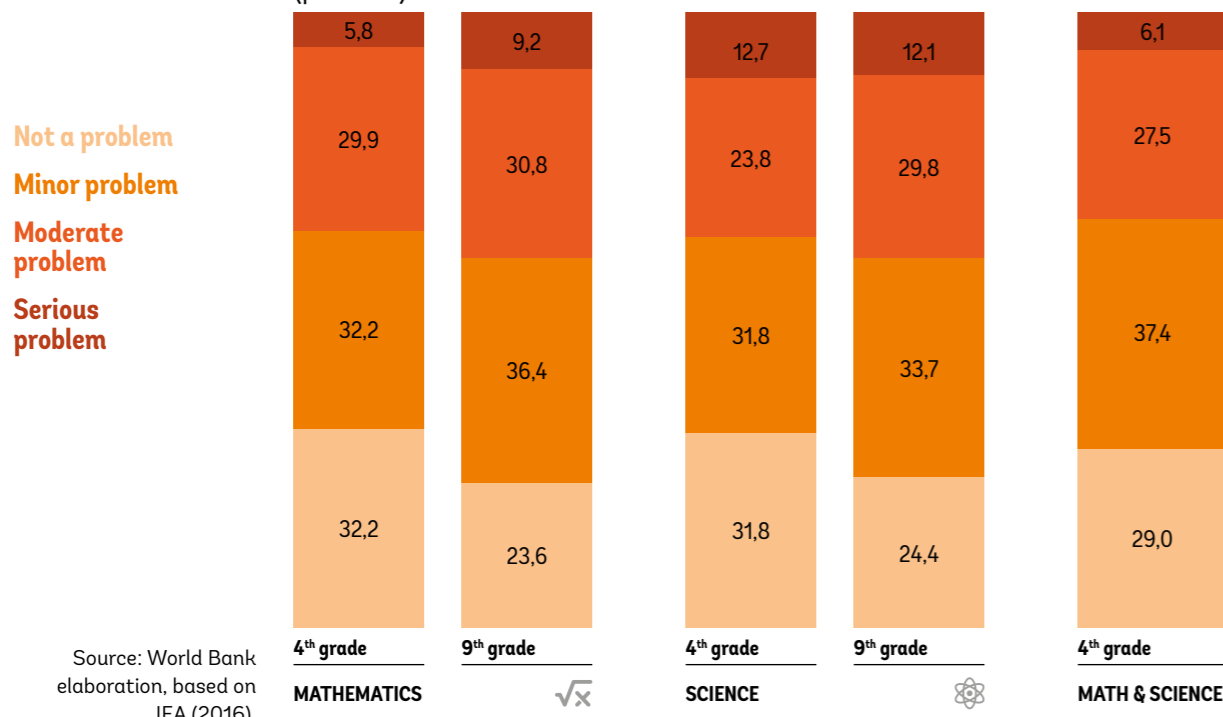
Source: World Bank elaboration, based on IEA (2016).

Figure 3-15. Teachers Reporting That They “Do Not Have Adequate Technological Resources” (percent)



Source: World Bank elaboration, based on IEA (2016).

Figure 3-16. Teachers do not have adequate support for using technology (percent)



Source: World Bank elaboration, based on IEA (2016).

areas.²¹ However, keeping the increased need for distance learning in mind, it is important to understand what the latest available data says about use of educational technologies in Armenia from the perspective of teachers.

Armenian teachers experience inadequacies in access to technological resources and support in using them. Teachers require intensive training to use these technological resources for instruction effectively. Figure 3-15 depicts teachers' perceptions of the access to and availability of technological resources. At least 30 percent of Armenian teachers reported that this is a moderate or serious problem. The rate is lower for 4th grade teachers but can be quite high for 9th grade teachers.

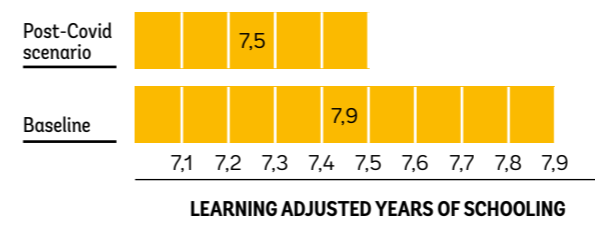
Having the necessary workspace and teaching materials/resources is essential for teachers to implement their teaching objectives. In Armenia, the availability of learning tools does not seem to be a problem; however, it is necessary to pay more attention to areas such as use of technology

In terms of support received, 20 to 30 percent of all teachers reported that receiving support on technological resources is not a problem. Fourth grade teachers seem to have received better support compared to 9th grade teachers. However, an overwhelming majority of all teachers found this to be either a minor problem or a moderate one (Figure 3-16).

21 Since 2013, Armenia has increased ICT capacity by expanding adequate ICT coverage to Armenian schools. This follows previous efforts in Armenia to increase the number of computers per school from 5.4 to 12.2 and to reduce the number of students per computer from 54.5 to 21.0. The number of schools with internet connectivity has also increased from just 365 to 1,358 over this timespan (Armenia Ministry of Education and Science: National Review 2014). Efforts specifically undertaken in the Education Improvement Project include the provision of adequate technological equipment and subsequent teacher training to 107 high schools across the country. Given the expansion efforts in Armenia, about 99 percent of schools have internet connectivity. Government policies have continued to support ICT coverage and utilization—the 2015 law on education emphasized the use of electronic resources.

Learning in Armenia during COVID-19 and the Recommended Education Response to Support Teachers

Figure 3-17. Change in Learning-Adjusted Years of Schooling, Baseline vs. Post-Covid



The Covid-19 pandemic caused school closures and learning disruptions at unprecedented levels. The World Bank built a simulation model to estimate the learning losses for each country as a result of Covid-19. Based on this model's assumptions that schools were closed for four months until end-June 2020 and that remote teaching in the country is half as effective as face-to-face teaching, it is estimated that Learning Adjusted Years of Schooling (LAYS)* in Armenia in general education would fall from their baseline of 7.9 years to 7.5 years. This estimate equates to a 4 percent drop in terms of learning in school. Hence, it is critical to mitigate the potential adverse impact of Covid-19 by supporting teachers.

The effect of COVID-19 on education may lead to economic harm as well unless action to recover learning losses and protect human capital is effectively taken immediately. Learning losses for student cohorts affected by COVID-19 are estimated to reduce their expected earnings by 3 percent per student. Armenia, much like other countries, needs to protect education spending, ensure remediation to recover learning losses, and invest in building a resilient education system for other potential disruptions in the future. Supporting teachers is a big part of these efforts as well. The World Bank outlines three key principles in order to prepare teachers for challenges and disruptions related to Covid-19 both now and unforeseeable future.

1. **For teachers to remain effective psychologically, teacher jobs and salaries must be protected, motivation must be enhanced, and ef-**

forts must be made to limit burnout. Teachers can play a significant awareness and mitigation role in their immediate communities. High-performing teachers can be selected for national delivery of lessons or messages which would bolster prestige as well as motivation. Maintaining a network of communication among teachers and school leadership can help teachers address challenges together. Once school systems stabilize, better accounting and performance standards can be developed in addition to providing psychosocial support to teachers.

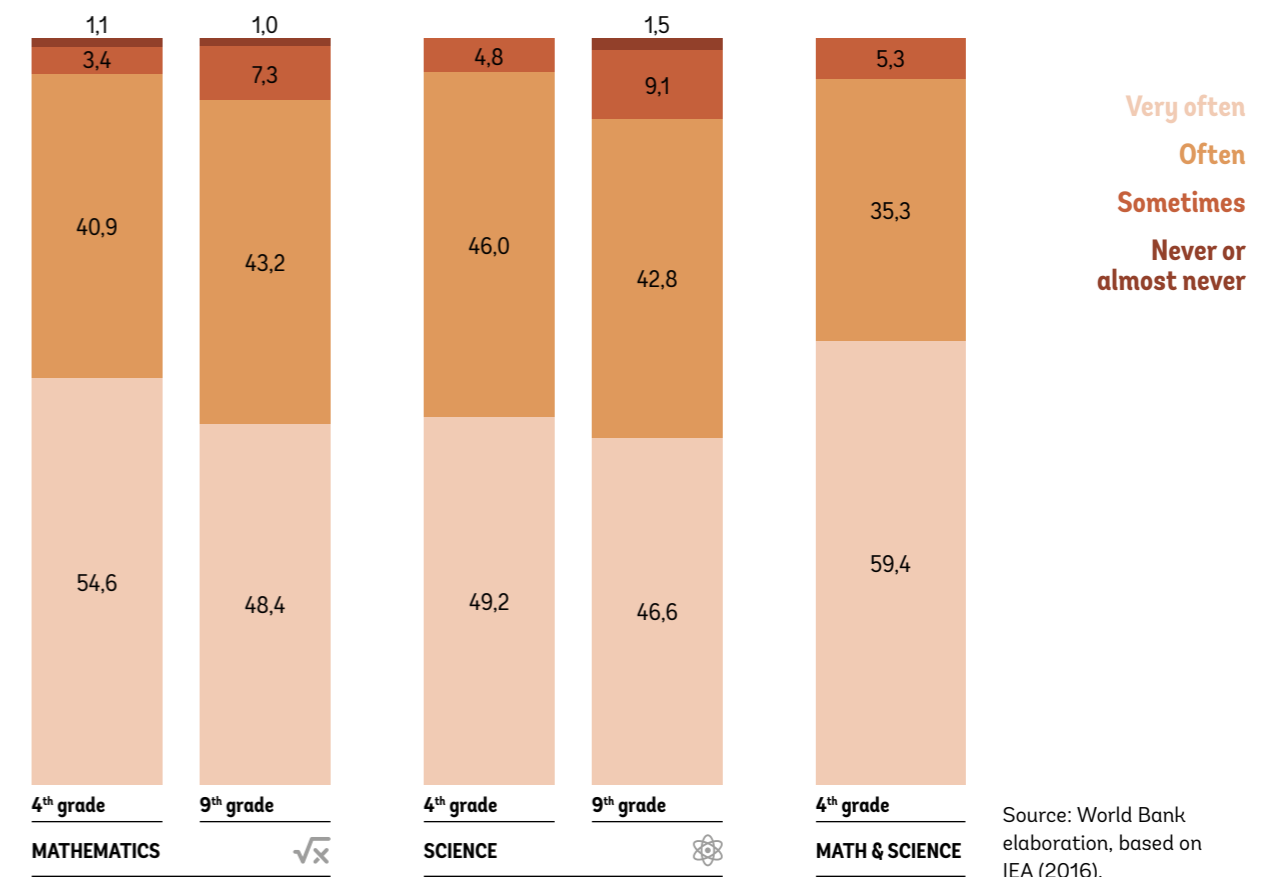
2. **For teachers to remain effective instructionally, they need to be equipped to assess students, understand the basics of multi-level teaching, and have the ability to ensure their own and their student's psychosocial well-being and hygiene.** Addressing these needs will require multiple teacher training sessions and additional resources. To assist with assessment, question banks can be developed with relevant resources on assessing student progress and skills from the previous grade. Teachers will also need resources and additional classroom assistance to help identify at-risk students while maintaining the skills of other students. Once school systems stabilize, efforts should be made to strengthen preservice curricula to help teachers respond to emergencies and improve technological readiness. Identifying alternative methods of professional development and technical support is also important.
3. **For teachers to remain effective technically, they need access to broadcast and digital communication channels and the skills to use those channels.** Covid-19 provides a good opportunity for teachers to build technological skills, depending on the technological context and infrastructure of a country or region. At a basic level, it is recommended that teachers have access to and the ability to use different modes of digital communication, which may require investment in hardware and connectivity. Once the school systems stabilize, teachers should be encouraged to maintain their technological skills and to use technology-enabled systems.

Source: Agevedo, et al., 2020; World Bank.

Note: Learning Adjusted Years of schooling is an indicator that takes into account the average years of schooling in general education while adjusting those years by the amount of learning that takes place during them.

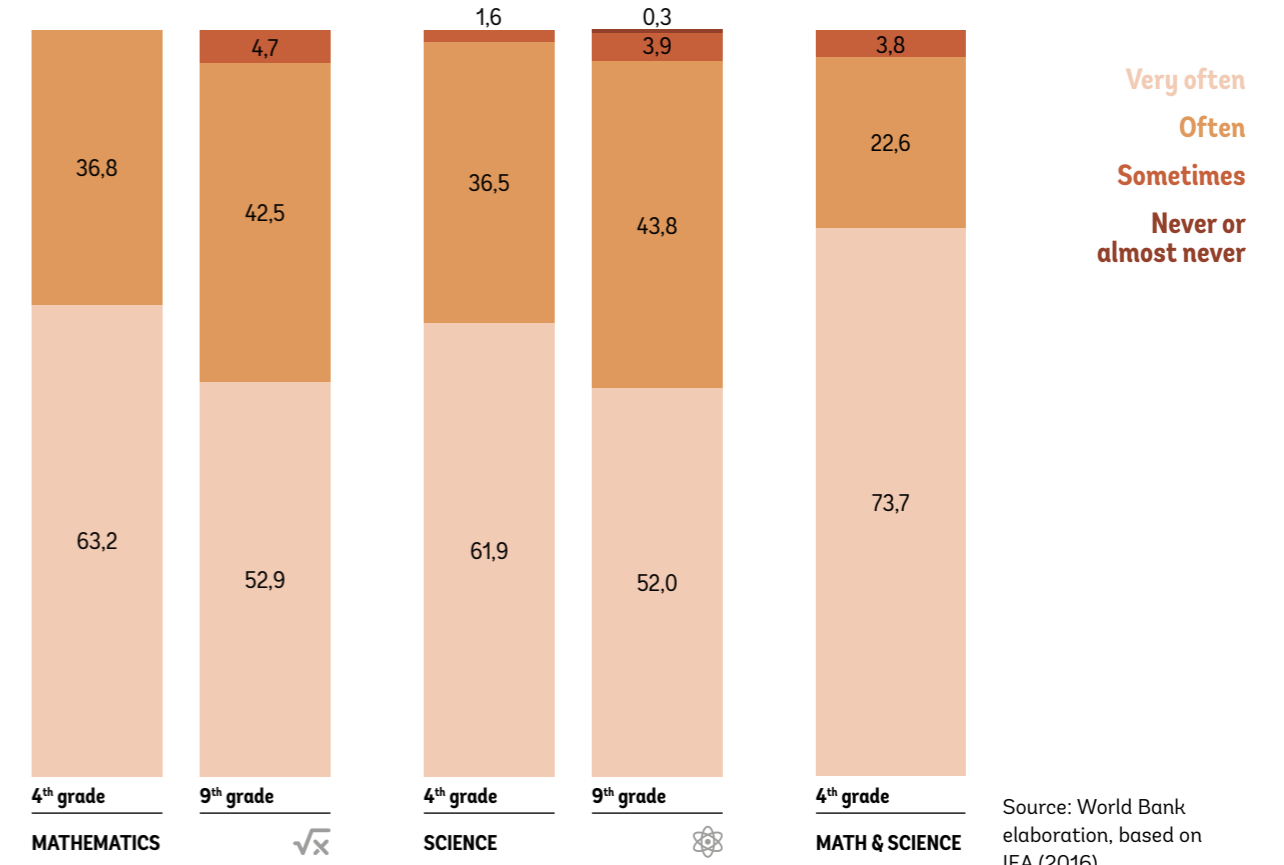


Figure 3-18. Teachers satisfaction - I am satisfied with being a teacher at this school (percent)



Source: World Bank elaboration, based on IEA (2016).

Figure 3-19. Teachers' Agreement with "I Find My Work Full of Meaning and Purpose" (percent)



Source: World Bank elaboration, based on IEA (2016).

Teachers' Job Satisfaction and Motivation

Fourth grade teachers have a higher level of contentment, satisfaction, sense of purpose, and enthusiasm in being teachers than 9th grade teachers. Evidence suggests that teachers' motivation is a key factor in improving learning outcomes for students (World Bank, 2018a). Most of the 4th grade math teachers reported being content with their profession often or very often (about 97 percent). Science teachers were the ones who reported the least contentment. Overall, teachers in 4th grade are much more likely to be content than their 9th grade counterparts (Table 3-5).

A related indicator is being satisfied with teaching in one's current school, a topic measured in Figure 3-18. The biggest takeaway is that all teachers are reasonably satisfied with teaching at their school, but a higher number of unsatisfied teachers across both math and science are teaching in 9th grade.

Figure 3-19 shows the results on the question of teachers' sense of purpose in their work. Fourth grade teachers are more likely to have a higher sense of purpose than 9th grade teachers, with

much higher percentages of finding their work purposeful very often. In comparison, teachers in 9th grade reported a slightly lower sense of purpose in their work.

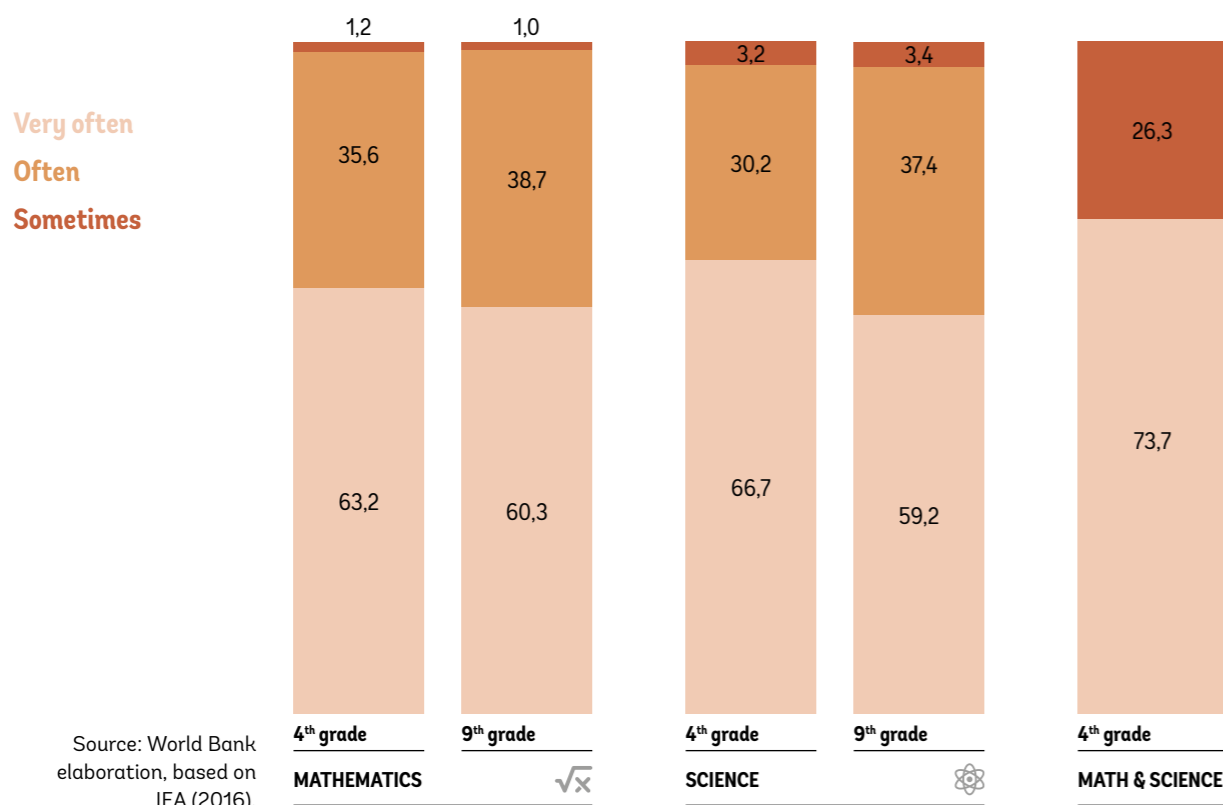
Another relevant aspect of teachers' motivation is their enthusiasm for the teaching profession. Figure 3-20 shows that teachers in both subjects have enthusiasm for their work either often or very often. Only 3 percent of the science teachers in both grades reported low enthusiasm, and among math teachers only 1 percent did.

Table 3-5. Teachers' Perception of "I am Content with My Profession as a Teacher" (percent)

	Mathematics		Science		Math & Science
	4 th grade	9 th grade	4 th grade	9 th grade	4 th grade
Very often	51.7	43.3	39.7	35.5	51.9
Often	44.8	47.9	50.8	52.9	42.1
Sometimes	3.5	8.8	6.4	10.3	6.0
Never or almost never	0.0	0.0	3.2	1.4	0.0

Source: World Bank elaboration, based on IEA (2016).

Figure 3-20. Teachers' Enthusiasm for their Job (percent)



Source: World Bank elaboration, based on IEA (2016).

Summary: This section presented a spotlight on teachers' qualification, opinions, perceptions, and preferences about their profession in Armenia. Teachers in Armenia are highly educated, have high expectations from their students, and have a very high degree of self-confidence in their ability to implement the curriculum despite finding it difficult to keep up with curricular changes. This points to the need for more effective professional development trainings for teachers. Around half of the teachers reported that they are overloaded with administrative tasks, believe they have too many students and too much material to cover, and feel like they need more time to prepare and to assist individual students.

Teachers collaborate with other teachers frequently and effectively, and they also collaborate with teachers and school management when it comes to delivering instruction, but there is a need felt among teachers for school management to support their professional development more. In Armenia, the overall availability of learning tools such as textbooks and labs does not seem to be a problem for teachers; however, it is necessary to pay more attention to areas such as use of technology, especially during the Covid-19 pandemic, which has caused unprecedented disruptions in

face-to-face learning and increased the need to effectively utilize education technology resources.

However, on a number of these indicators there are marked differences between elementary (4th grade) and lower-secondary/middle school (9th grade) teachers on a number of these indicators. To summarize: (1) middle school teachers are more educated than elementary school teachers; (2) elementary school teachers have higher expectations of their students than middle school teachers; (3) more elementary school teachers say they have too many students; (4) elementary school teachers share teaching experiences, visit other classrooms, and work together more to ensure continuity in learning at higher rates than middle school teachers; (5) elementary school teachers have more clarity about their school's learning and teaching objectives; (6) middle school teachers report being affected more adversely by lack of instructional materials and lack of support for using education technologies; and (7) elementary school teachers have a higher level of contentment, satisfaction, sense of purpose, enthusiasm and pride in being teachers than middle school teachers. This means there are diverse intervention opportunities to be explored based on educational level to improve outcomes for students and teachers.

Gohar's Experience with Teaching in Armenia

At the beginning of her career, Gohar spent a lot of her time planning and preparing for her weekly 20-hour teaching load. She found herself consulting more experienced teachers, asking about their teaching strategies. She used the national curriculum, subject standards, and teacher guides heavily as she grew into her role. With time, Gohar gained more confidence in her ability to teach and relied less on external support. She worked to motivate her students to appreciate science as much as she did. She attended professional development opportunities whenever she could. Not all development opportunities were subject-related for Gohar, but she enjoyed the experience of engaging with other teachers. Professional development opportunities re-energized her to get back into the classroom with new tools and an expanded her network of colleagues across Armenia.

As the years passed and her own family expanded, so did Gohar's responsibilities. After school, she took care of her two children and helped her husband tend to the farm, among other duties. With time, Gohar began to feel the stress of underpayment at school, despite her heavy workload. Her income was not sufficient for her growing family's needs and there was no opportunity for additional teaching hours at school. Like many other teachers in Armenia, she decided to take on an additional three hours of private tutoring each day. This helped her financial situation slightly, but it came at a cost. Her available time significantly decreased. She had less time to spend long hours on planning after school, pursuing professional development opportunities, and on her family.

At school, Gohar's class sizes had increased making it more difficult to focus on individual students that needed extra attention. She

knew that in some grade levels, even more advanced students struggled to keep up with the overloaded curriculum and prepare for exams. The administrative burden on teachers also increased, requiring teachers to duplicate registry information into additional platforms, and taking more time away from planning and engaging with other teachers and students. She had also been promoted as a head teacher and was on her way to becoming the methodology lead for her subject. Soon, any of the free time she had at school would be filled with classroom observations, working on methodology publications, and ensuring support for her head class.

Today, Gohar is still teaching with the confidence, expertise, and resilience she built over the years, but she understands the detrimental impact these challenges have on learning. Gohar is currently adapting to teaching in a distance-learning setting while simultaneously coping with the possibility of an external military attack on her border town, as a result of an old border conflict. She has not attended professional development in the last two years and worries that teachers will not receive the support they need to manage teaching in a global pandemic and adapt to the ongoing education reforms, amidst rising security concerns.

She also believes that, for teachers, times have changed. As much as she loves and has sacrificed for what she does, the teaching professional is less respected now than it was during her time and her mother's time. She hopes that new and future teachers are motivated and incentivized to join the field of teaching as she once was. And, she hopes that teachers are adequately supplied with the relevant resources and training to sustain positive change and improved learning.



4

Recommendations and Considerations for Action

Challenges, Recommendations, and Actions

We present the challenges that this note has identified, followed by relevant recommendations and specific actions to consider, in table form for ease of comparison.

Challenge	Recommendation	Actions
<p>Lack of relevant and timely professional development for teachers and support in accessing professional development opportunities</p>	<p>1a. Provide continuous support and motivation, in the form of high-quality in-service professional development and strong school leadership, to allow teachers to continually improve.</p>	<p>Practical, repeated learning opportunities help teachers be more effective. Teacher training needs to be <u>individually targeted and repeated, with follow-up coaching and peer to peer learning opportunities, often around a specific pedagogical technique (World Bank, 2018a)</u>. Providing intensive teacher professional development <u>in stages rather than light-touch, one-time professional development to the full teaching force</u> has the potential to work better.</p> <p>For teachers who struggle with instruction and time use in the classroom, <u>detailed teachers' guides</u> and access to coaching and mentoring can help them deliver, especially for foundational skills like basic literacy and numeracy.</p> <p>Better managed schools deliver better results, and it is possible to help school leaders be more effective at supporting teachers in fulfilling their professional goals (Beteille and Evans, 2019). This can be done by <u>regular support and trainings for school managers</u> on how to manage their teacher resources.</p>
<p>Lack of technological learning resources and teacher support in learning them</p>	<p>1b. Prioritize investment in educational resources so that all students can be assisted effectively if they lag behind and improve the practices of using education technology as a strong complement to teachers, and not as their substitute.</p>	<p><u>Using technology wisely to enhance the ability of teachers to reach every student, factoring their areas of strength and development, is crucial.</u>²² Technology works best when it complements teachers rather than substituting for them, and <u>solutions need to be tested locally before scaling.</u></p> <p>This is especially relevant in the context of Covid-19, which provides an opportunity for teachers to build technological skills. For teachers to remain effective technologically, they need <u>continuous access and refreshers to sustain the ability to use different modes of digital communication which may require investment in hardware, connectivity, and regular trainings. Once the school systems stabilize, teachers should be encouraged and supported to maintain their technological skills in collaboration with school leadership (World Bank, forthcoming).</u></p> <p>It is also important to note that there may be different training needs for primary and secondary school teachers in terms of the role of technology and the types of instructional and learning materials that could help to enhance competency-based, student-centered learning complementing the two levels. It would be advisable to <u>collaborate with local NGOs, research institutes, and private-sector actors that are active in this realm to employ the right solutions for each level of education in ways that lend to continuous learning.</u></p>
<p>Overload of teacher's tasks—too many students, too much material and more time needed to support students.</p>	<p>2. Increase efficiency and motivation of teachers by equipping them with relevant teaching materials that are aligned with learner needs and planning enough available time for teaching and organizing support staff (such as teacher assistants, special education or resources teachers) to support the teacher to meet the specific learning needs of students.</p>	<p><u>Teachers' classroom norm is 22 hours per week. The Ministry should explore whether there is a real issue with high workload by surveying teachers on this specific topic and understanding their needs better.</u> This would give space to teachers to support all learners as well as to better prepare for class.</p> <p>In addition, teachers' teaching workloads can be heavy with additional duties, such as coordinating the activities of parent-teacher associations, running extracurricular activities, and performing administrative tasks. It is important to have a structure in place in every school where <u>teachers' workloads are managed transparently, properly, and fairly by school management.</u> This can be achieved by task setting for each teacher at the beginning of each semester and having regular check-ins between the teacher and school management.</p> <p><u>Rationalizing the content of the curricula and providing high quality instructional materials (including teacher guides)</u> are a good start to support teachers. Doing this can also <u>support teachers (through better time and task planning opportunities), and it can support learners by enabling them to receive continuous support from their teachers and assistant teachers to boost learning.</u>²³</p>
<p>Teaching has a relatively low professional status and can be considered a less attractive field for younger generations</p>	<p>3. Make teaching a more attractive profession for potential and existing teachers by improving its status, compensation policies, and career progression structures.</p>	<p>Professions are attractive when they pay well, provide an environment conducive to work, build intrinsic motivation, and offer learning and career advancement opportunities. Students learn more in countries where teaching is a well-regarded profession (Dolton et al., 2018). A range of factors can potentially improve the professional status of teachers: <u>making teacher salaries competitive, raising the criteria and qualifications to enter and stay in the profession, improving working conditions, and expanding opportunities for learning and career advancement.</u> The lack of these conditions may lead to unwanted teacher behaviors, such as high absenteeism or moonlighting as private tutors, which undermine the promise of the learning process at schools.</p> <p>Raising salaries for teachers alone is not a solution, because it does not fix any shortcomings in motivation or effort.²⁴ Teacher compensation policies in Armenia do not <u>reward performance based on student outcomes.</u> Whether or not compensation policies rewarding performance are likely to be employed and effective depends on whether the main constraints to better teaching lie within the reach of teachers, and whether information and management systems would allow such a system to be credible. <u>Armenia can explore this option through the newly planned teacher standards system that is in the pipeline.</u></p> <p><u>Ongoing communication and committed leadership</u> can also play a key role in making career progression structures successful.</p>

Responsible Entity	Timing
MoESCS and other relevant partners	ST (< 1 year); LT (> 1 year)
Fiscal Cost	Priority
Small, medium, large	Highest=1
Small	1

Responsible Entity	Timing
MoESCS, Ministry of Finance	ST (< 1 year); LT (> 1 year)
Fiscal Cost	Priority
Small, medium, large	Highest=1
Medium to large	2

Responsible Entity	Timing
MoESCSers	ST (< 1 year); LT (> 1 year)
Fiscal Cost	Priority
Small, medium, large	Highest=1
Medium	1

Responsible Entity	Timing
MoESCS, Ministry of Finance, Armenian government	ST (< 1 year); LT (> 1 year)
Fiscal Cost	Priority
Small, medium, large	Highest=1
Large	2

22 Evidence shows that technology can enable distance teacher coaching in South Africa, can provide learning targeted to the level of the child in India, and can make school inspectors more effective in Kenya (Beteille and Evans, 2019).

23 There are many examples of curriculum reforms that require teachers to equip students with new skills and employ better pedagogy, but often without giving teachers sufficient training and supportive teaching materials (Peng et al., 2014; Urwick and Kisa, 2014). In

such cases, teachers are expected to perform as professionals, but education systems fail to offer them professional development opportunities (Mooij, 2008). This is a risk but can be overcome with good planning.

24 As an example, Indonesia doubled pay for certified teachers which increased teacher satisfaction, but it had no effect on student performance and learning outcomes in the short-term (de Ree et al., 2017).

Annex

References

1. _____. 2009. *About General Education; Chapter 5, Article 26: Teacher, Training, Certification, and Awards, HO-160-N, (Arm.)*. Yerevan: Republic of Armenia. Retrieved from: <http://www.irtek.am/views/act.aspx?tid=158425>
2. Azevedo, João Pedro, Amer Hasan, Diana Goldemberg, Syedah Aroob Iqbal, and Koen Geven. 2020. *Simulating the Potential Impacts of Covid-19 School Closures on Schooling and Learning Outcomes: A Set of Global Estimates*. Washington, DC: World Bank.
3. Belyavina, Raisa, Ruben Petrosyan, Alvard Poghosyan, Armine Ter-Ghevondyan, and Ann Wiley. 2010. *Teacher Quality and Teacher Work Conditions in Armenia. International Education Policy Studies*. Yerevan: UNICEF.
4. Beteille, Tara, and David K. Evans. 2019. *Successful Teachers, Successful Students: Recruiting and Supporting Society's Most Crucial Profession*. Washington, DC: World Bank.
5. _____. 2019. *Successful Teachers, Successful Students: Recruiting and Supporting Society's Most Crucial Profession*. Washington, DC: World Bank.
6. de Ree, Joppe, Karthik Muralidharan, Menno Pradhan, and Halsey Rogers. 2017. *Double For Nothing? Experimental Evidence on an Unconditional Teacher Salary Increase in Indonesia*. Washington, D.C.: World Bank.
7. Dolton, Peter, Oscar Marcenaro, Robert de Vries, and Po-Wen She. 2018. "Global Teacher Status Index 2018." London: Varkey GEMS Foundation.
8. International Association for the Evaluation of Educational Achievement (IEA). 2016. *TIMSS 2015 Results*.
9. Jackson, C. Kirabo. 2018. "Does School Spending Matter? The New Literature on an Old Question." IDEAS Working Paper Series from RePEc.
10. Khachatryan, Serob, Silva Petrosyan, and Gayane Terzyan. 2013. "Assessment of Teacher Professional Development and Educational Content in the Context of General Education Reforms in Armenia." Yerevan: Open Society Institute.
11. Kobakhidze, Magda Nutsa. 2018. "Armenia, Azerbaijan, Georgia and Turkey." Routledge International Handbook of Schools and Schooling in Asia, 355. London: Routledge.
12. Milovanovitch, M. 2016. *Strengthening Integrity and Fighting Corruption in Education: Armenia*: Open Society Foundations.
13. Ministry of Education, Science, Culture and Sport (MoESCS). 2013. *Procedure of Competitive Hiring in Education*. Yerevan: Republic of Armenia
14. _____. 2014. *Education for All: National Review*. Yerevan: Republic of Armenia.
15. _____. 2020. *Draft Qualifications Framework and Attestation Protocol*. Unpublished.
16. Mooij, Jos. 2008. "Primary Education, Teachers' Professionalism and Social Class About Motivation and Demotivation of Government School Teachers in India." *International Journal of Educational Development* 28(5), 508-523.
17. OECD. 2019. *Education at a Glance 2019: OECD Indicators*. Paris. <https://doi.org/10.1787/f8d7880d-en>.
18. Psacharopoulos, George, and Harry Anthony Patrinos. 2018. "Returns to Investment in Education: A Decennial Review of the Global Literature." *Education Economics*, 26(5): 445-458. Washington, DC: World Bank.
19. Peng, Wen J., Elizabeth McNess, Sally Thomas, Xiang Rong Wu, Chong Zhang, Jian Zhong Li, and Hui Sheng Tian. 2014. "Emerging Perceptions of Teacher Quality and Teacher Development in China." *International Journal of Educational Development* 34, 77-89.
20. Rutkowski, Jan. 2013. *Skills Employers Seek. Results of the Armenia STEP Employer Skills Survey*. Report no. 98904. Washington, DC: World Bank. <http://microdata.worldbank.org/index.php/catalog/2567>
21. _____. 2020. *Teach for Armenia*. Yerevan. <https://www.teachforarmenia.org/>
22. Sandefur, Justin. 2018. "Chart of the Week: Teacher Pay around the World: Beyond "Disruption" and "De-skilling." Center for Global Development." <https://www.cgdev.org/blog/chart-week-teacher-pay-around-world-beyond-disruption-and-deskilling> **Washington, DC: Center for Global Development.**
23. Sondergaard, Lars, Mamta Murthi, with Dina Abu-Ghaida, Christian Bodewig, and Jan Rutkowski. 2012. "Skills, Not Just Diplomas: Managing Education for Results in Eastern Europe and Central Asia." *Directions in Development*. Washington, DC: World Bank.
24. Urwick, James, and Sarah Kisa. 2014. "Science Teacher Shortage and the Moonlighting Culture: The Pathology of the Teacher Labour Market in Uganda." *International Journal of Educational Development* 36: 72-80.
25. World Bank. 2017. *Republic of Armenia: Reducing Poverty and Improving Shared Prosperity Through Better Jobs, Skills, and Education*. Washington DC: Education Global Practice, Europe and Central Asia Region, World Bank.
26. _____. 2018a. *World Development Report 2018: Learning to Realize Education's Promise*. Washington, D.C.: World Bank.
27. _____. 2018b. *World Bank Education Overview: New Technologies (English)*. World Bank Education Overview. Washington, D.C.: World Bank.
28. _____. 2019. *Ending Learning Poverty: What Will It Take?* Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/32553>.
29. _____. 2020. *World Bank Human Capital Project October 2020*. Washington, DC: World Bank.
30. _____. Forthcoming. *3 Principles to Support Teacher Effectiveness During Covid-19*. Washington, DC: World Bank.

List of figures, tables, and boxes

Figures.	Pag.
Figure S-1. Where Armenia Ranks in the Human Capital Index (Productivity against GDP per Capita)	10
Figure S-2. Change in Learning-Adjusted Years of Schooling (LAYS), Baseline Versus Post-Covid	11
Figure 1-1. Where Armenia Ranks in the Human Capital Index (Productivity against GDP per Capita)	17
Figure 1-2. Education Expenditure as a Share of GDP, by Country, Armenia, ECA Countries, and EU and OECD Averages (latest data)	19
Figure 1-3. Armenia: Annual Rate of Return from Investment in Schooling, 1998-2012	19
Figure 1-4. Learning Poverty in Armenia and Comparators, 2019	21
Figure 1-5. TIMSS Math and Science Average Score for Armenia, 2003-2015	21
Figure 1-6. TIMSS Math Score Differences by Gender, Location, and Socioeconomic Level, 2015	22
Figure 1-7. TIMSS Math Score Differences by Gender, Location and Socioeconomic Level, 2003 through 2015	22
Figure 1-8. TIMSS Math Score Differences by Gender, Location and Socioeconomic Level, Age, Enjoyment of Learning, and Bullying Index, 4th and 9th Grades, 2003 through 2015	23
Figure 1-9. Impact of Teacher and Class Characteristics on Student Learning, Math, Grades 4 and 9	25
Figure 2-1. Age distribution of Teachers in Armenia, by Marz (region), 2020 (percent)	31
Figure 2-2. Share of Teachers Above Age 50 in Select ECA Countries, 2018 (percent)	31
Figure 2-3. Gender Distribution of Teachers in Armenia, by Marz (region), 2020 (percent)	32
Figure 2-4. Tenure Distribution of Teachers in Armenia, by Marz (region), 2020 (percent)	32
Figure 2-5. Share of Teachers Who Received Training as Part of their Professional Development, by Marz (region), 2020	35
Figure 2-6. Education Expenditure Composition by Nature (percent), ECA Countries and Middle-Income Comparators, 2015 or latest	38
Figure 2-7. Teacher Salary as a Multiple of Per-Capita GDP, Armenia and Comparators	39
Figure 2-8. Trends and Comparison of Nominal Monthly Labor Income in Armenia, 2013-2020	39
Figure 2-9. Teacher Salaries by Characteristics: Gender, Age, and Tenure (in Armenian drams)	40
Figure 3-1. Math and Science Teachers by Level of Formal Education Completed, 4th Grade (percent)	45
Figure 3-2. Math and Science Teachers by Level of Education Attained, 9th Grade (percent)	45
Figure 3-3. Teachers' Degree of Success in Implementing the School's 4th and 9th Grade Math and Science Curricula (percent)	46
Figure 3-4. Math and Science Teachers Reporting That They "Have Difficulty Keeping Up With the Changes to the Curriculum" (percent)	47
Figure 3-5. Math and Science Teachers Reporting That They "Have Too Many Administrative Tasks" (percent)	47
Figure 3-6. Math and Science Teachers Reporting That They "Have Too Many Students in the Classes" (percent)	48
Figure 3-7. Average Size of Primary School Classes for Selected Countries, Worldwide, Various Years	49
Figure 3-8. Math and Science Teachers Reporting That They "Have Too Much Material to Cover in Class" (percent)	48
Figure 3-9. Teaching Hours per Week: Norms in Armenia and Select Comparators	50
Figure 3-10. Math and Science Teachers Reporting That They "Need More Time to Assist Individual Students" (percent)	50
Figure 3-11. Teachers' Opinion on the Clarity of School's Educational Objectives (percent)	52
Figure 3-12. School Leadership's Support for Teachers' Professional Development (percent)	54

Figures.	Pag.
Figure 3-13. Severity of Problem of Teachers Not Having Adequate Work Space (e.g., for Preparation, Collaboration, or Meeting With Students) (percent)	55
Figure 3-14. Severity of Teachers Not Having Adequate Instructional Materials (percent)	55
Figure 3-15. Teachers Reporting That They "Do Not Have Adequate Technological Resources" (percent)	56
Figure 3-16. Teacher Responses to "Do Not Have Adequate Support for Using Technology" (percent)	56
Figure 3-17. Change in Learning-Adjusted Years of Schooling, Baseline vs. Post-Covid	57
Figure 3-18. Teachers' Perception of "I am Satisfied with Being a Teacher at This School" (percent)	59
Figure 3-19. Teachers' Agreement with "I Find My Work Full of Meaning and Purpose" (percent)	59
Figure 3-20. Teachers' Enthusiasm for their Job (percent)	60
Tables.	Pag.
Table 1-1. Unpacking the Human Capital Index: Armenia vs. Europe and Central Asia	18
Table 2-1. Average Years of Teacher Tenure, Yerevan and Tavush Regions, by Age Category	33
Table 2-2. Average Age at Tenure, Yerevan and Tavush Regions, by Age Category	33
Table 3-1. Teachers' Expectations for Student Achievement (percent)	46
Table 3-2. Math and Science Teachers Reporting That They "Discuss With Other Teachers How to Teach a Topic" (percent)	51
Table 3-3. Math and Science Teachers Reporting That They "Collaborate in Planning and Preparing Instructional Materials With Other Teachers" (percent)	51
Table 3-4. Math and Science Teachers Reporting That They "Work Together to Ensure Continuity in Learning" (percent)	51
Table 3-5. Teachers' Perception of "I am Content with My Profession as a Teacher" (percent)	58
Boxes.	Pag.
Box 1-1. Comparison of Determinants of TIMSS 4th Grade Math Achievement Results Among Countries in the ECA Region	24
Box 1-2. Ongoing World Bank Activities in Armenia Relevant for Supporting Teachers	26
Box 2-1. K-12 Education System in Armenia	30
Box 2-2. Teacher Selection and Recruitment in Armenia	34
Box 2-3. Teach For Armenia	36
Box 3-1. TEACH Tool Snapshot—Preliminary Observations for Armenia	53
Box 3-2. Learning in Armenia during COVID-19 and the Recommended Education Response to Support Teachers	57

Annex A.

Armenia: Multilevel regression analysis of students nested in schools using Maximum Likelihood Estimation with House Weights

Table A-1. TIMSS 2015: Determinants of Learning in Math in Grade 4 based on a multilevel regression of students nested in schools using Maximum Likelihood Estimation with House Weights

	Armenia			
	Model 1	Model 1	Model 1	Model 1
	Students	Teachers	School	Full
Student Characteristics				
Female	-3.17			-3.55
	(2.48)			(2.76)
Students Age (standardized)	3.60***			4.38***
	(1.20)			(1.49)
SES Index (standardized)	11.61***			12.08***
	(1.32)			(1.67)
Students Like Learning Mathematics Index (standardized)	5.81***			5.27**
	(1.68)			(2.07)
Engaging Teaching in Math Lessons Index (standardized)	-1.82			-1.46
	(1.30)			(1.56)
Students Confident in Mathematics Index (standardized)	20.20***			19.23***
	(1.34)			(1.55)
Student Bullying Index (standardized)	-8.10***			-8.28***
	(1.29)			(1.60)
Teacher characteristics				
Highest level of education: Below Bachelor (reference)				
Bachelor		13.82		10.89
		(10.89)		(10.61)
Master/PhD		6.40		10.53
		(8.68)		(8.08)
Teacher Majored in Ed and Math (dummy)		-5.87		-2.88
		(6.66)		(6.55)

	Armenia			
	Model 1	Model 1	Model 1	Model 1
	Students	Teachers	School	Full
Teacher experience (Years teaching)				
11-20		6.22		-2.80
		(10.25)		(10.05)
21-30		7.16		0.98
		(10.16)		(9.20)
31+		-9.69		-13.74
		(12.04)		(10.31)
Class Size (per 10 students)		-0.42		-6.51
		(6.40)		(6.15)
School characteristics				
Rural school			2.02	2.59
			(8.17)	(9.69)
School offers free meals			-2.13	-1.64
			(7.92)	(8.45)
Teachers arriving late is a moderate or serious problem			7.85	9.51
			(15.84)	(15.32)
Teacher absenteeism is a moderate or serious problem			6.95	-11.77
			(17.36)	(18.97)
School Discipline Problems (Index) (standardized)			2.42	-1.85
			(4.60)	(4.38)
Math School capacity to provide instruction affected by shortage (standardized)			1.71	2.32
			(3.32)	(3.78)
Total Instructional Time in a typical day (hours)			-8.58	-8.74
			(5.51)	(5.59)
Constant	491.51***	476.27***	522.22***	542.89***
	(3.56)	(23.14)	(25.15)	(33.84)

TABLE A-2. TIMSS 2015: Determinants of Learning in Math in Grade 9 based on a multilevel regression of students nested in schools using Maximum Likelihood Estimation with House Weights

	Armenia			
	Model 1	Model 1	Model 1	Model 1
	Students	Teachers	School	Full
Student Characteristics				
Female	2.92			3.13
	(3.63)			(3.00)
Students Age (standardized)	1.95			0.88
	(2.36)			(1.54)
SES Index (standardized)	16.07***			13.55***
	(1.96)			(1.27)
Students Like Learning Mathematics Index (standardized)	3.42			4.67**
	(2.65)			(2.22)
Engaging Teaching in Math Lessons Index (standardized)	-1.94			-1.70
	(2.24)			(1.80)
Students Confident in Mathematics Index (standardized)	26.21***			27.53***
	(2.41)			(2.08)
Student Bullying Index (standardized)	-0.74			0.39
	(1.77)			(1.22)
Teacher characteristics				
Highest level of education: Bachelor or below (reference)				
Master/PhD		39.09***		21.62**
		(12.22)		(10.78)
Teacher Majored in Ed and Math (dummy)		16.46*		6.80
		(9.37)		(6.33)
Teacher experience (Years teaching)				
11-20		3.84		3.98
		(10.73)		(10.72)
21-30		-2.84		-7.14
		(11.92)		(8.99)

	Armenia			
	Model 1	Model 1	Model 1	Model 1
	Students	Teachers	School	Full
31+		-4.41		-3.48
		(11.03)		(8.97)
Class Size (per 10 students)		5.22		-3.36
		(6.25)		(5.44)
School characteristics				
Rural school			-7.51	-7.79
			(7.87)	(7.76)
School offers free meals			-16.46**	-13.76**
			(7.13)	(6.91)
Teachers arriving late is a moderate or serious problem			2.09	5.24
			(11.48)	(10.97)
Teacher absenteeism is a moderate or serious problem			33.73*	37.44**
			(17.27)	(17.01)
School Discipline Problems (Index) (standardized)			-0.00	1.19
			(4.85)	(4.58)
Math School capacity to provide instruction affected by shortage (standardized)			3.76	3.62
			(3.28)	(3.39)
Total Instructional Time in a typical day (hours)			-11.07	-14.36*
			(8.06)	(8.13)
Constant	472.47***	420.60***	537.85***	544.27***
	(5.33)	(17.45)	(42.72)	(47.02)

Note: To analyze of the relationship between the school, teacher, and student characteristics on Math student achievement we applied a hierarchical linear modeling (HLM) framework. The estimated coefficients and standard errors are adjusted to incorporate the nested and clustered structure of the data: students responses within the same school tend to be correlated, and some correction is needed to adjust the significance levels used for hypothesis testing.

Annex B.

Determinants of 4th Grade Math Achievement Among ECA Countries

Table A-3. Determinants of Learning in Math in Grade 4 in Armenia and ECA comparator countries based on a multilevel regression analysis of students nested in schools using Maximum Likelihood Estimation and House Weights

	Armenia	Bulgaria	Croatia	Georgia	Kazakhstan	Serbia	Russia
Student Characteristics							
Female	-3.55 (2.76)	0.98 (2.41)	-8.27*** (2.03)	-0.31 (3.12)	2.56 (1.90)	1.06 (3.89)	2.89 (1.84)
Students Age (standardized)	4.38*** (1.49)	0.55 (1.35)	-0.06 (0.95)	4.45*** (1.46)	-0.16 (1.18)	0.80 (1.80)	-1.66** (0.79)
SSES Index (standardized)	12.08*** (1.67)	23.19*** (2.72)	16.38*** (1.14)	15.94*** (1.97)	4.79*** (1.29)	23.20*** (2.49)	10.30*** (1.13)
Students Like Learning Mathematics Index (standardized)	5.27** (2.07)	-1.94 (1.43)	-9.41*** (1.23)	-0.63 (2.01)	1.44 (1.28)	-9.00*** (1.95)	0.74 (1.20)
Engaging Teaching in Math Lessons Index (standardized)	-1.46 (1.56)	-4.67*** (1.50)	-6.07*** (1.01)	-1.65 (1.91)	-2.93*** (1.13)	-7.02*** (1.95)	-6.03*** (1.16)
Students Confident in Mathematics Index (standardized)	19.23*** (1.55)	25.92*** (1.74)	34.67*** (1.17)	24.77*** (1.90)	14.16*** (1.25)	41.57*** (2.22)	25.29*** (1.31)
Student Bullying Index (standardized)	-8.28*** (1.60)	-2.46** (1.16)	-3.33*** (0.92)	-6.82*** (1.63)	-2.89* (1.48)	-2.55 (1.60)	-2.72*** (1.03)
Teacher characteristics							
Highest level of education: Below Bachelor (reference)							
Bachelor	10.89 (10.61)	1.49 (15.66)	6.15* (3.14)	4.45 (20.91)	11.32 (11.43)	5.18 (5.44)	13.00 (9.38)
Master/PhD	10.53 (8.08)	6.76 (13.14)		18.63 (20.72)	41.86** (16.26)	18.17** (7.81)	15.38 (10.40)
Teacher Majored in Ed and Math (dummy)	-2.88 (6.55)	12.66 (10.87)		-4.16 (7.61)	0.19 (12.41)	3.49 (5.06)	-1.81 (6.11)
Teacher experience (Years teaching)							
11-20	-2.80 (10.05)	8.39 (14.62)	-0.67 (4.84)	27.51** (11.72)	2.39 (14.25)	1.30 (5.64)	18.86 (15.20)
21-30	0.98 (9.20)	1.52 (12.86)	13.07** (5.19)	9.71 (10.37)	9.79 (14.88)	5.21 (5.77)	19.20 (14.92)
30+	-13.74	10.51	14.37***	-3.66	-10.75	12.75*	14.04

	Armenia	Bulgaria	Croatia	Georgia	Kazakhstan	Serbia	Russia
	(10.31)	(13.11)	(5.08)	(13.78)	(13.00)	(7.19)	(14.25)
Class Size (per 10 students)	-6.51 (6.15)	-40.37*** (12.08)	5.45* (3.19)	-9.08 (6.26)	1.58 (11.32)	0.12 (3.63)	-2.53 (7.29)
Teacher characteristics							
Rural school	2.59 (9.69)	-19.14* (11.11)	-8.82** (3.58)	-2.47 (9.35)	-24.26* (14.17)	-7.05 (6.27)	-11.98 (9.05)
School offers free meals	-1.64 (8.45)	12.24 (15.10)	3.29 (3.58)	29.77** (11.62)	-35.02 (26.48)	1.61 (5.23)	-19.35 (12.69)
Teachers arriving late is a moderate or serious problem	9.51 (15.32)	18.80 (21.90)		5.84 (13.07)	-1.72 (18.38)	5.29 (7.07)	6.50 (23.72)
Teacher absenteeism is a moderate or serious problem	-11.77 (18.97)	-19.18 (24.26)	-13.89*** (4.28)	21.00 (14.56)	-11.52 (15.52)	3.99 (7.46)	
School Discipline Problems (Index) (standardized)	-1.85 (4.38)	9.11 (6.23)	-0.20 (1.85)	9.10 (6.82)	1.17 (7.93)	4.64 (3.76)	9.36*** (3.13)
Math School capacity to provide instruction affected by shortage (standardized)	2.32 (3.78)	0.62 (7.77)	-1.77 (1.54)	4.32 (3.56)	1.65 (5.47)	0.88 (2.63)	0.99 (2.36)
Total Instructional Time in a typical day (hours)	-8.74 (5.59)	1.88 (3.00)	-1.06 (0.93)	1.96 (3.48)	-5.11 (5.42)	2.37 (1.63)	-1.92 (7.42)
Constant	542.89*** (33.84)	580.14*** (30.33)	491.84*** (9.92)	449.93*** (27.34)	605.84*** (49.28)	501.66*** (10.80)	572.56*** (38.09)
Cases							
Schools (Level 2)	111	101	155	108	146	120	167
Students (Level 1)	2695	2642	3612	2220	3672	2761	3854
Variance							
Total Variance	4495.767	4202.82	2422.007	4909.239	5527.472	3889.107	3392.763
Student Level (Residual)	3378.89	2506.485	2119.192	3503.592	2093.91	3400.866	1970.864
School Level	1116.877	1696.335	302.8149	1405.647	3433.563	488.2403	1421.899

Note: "n.a." indicates that the variable was excluded from the model due to collinearity with other predictors, missing responses altogether or lack of variation.

Standard errors in parentheses

Significance levels: * p<0.10, ** p<0.05, *** p<0.01

Source: World Bank estimations, based on TIMSS 2015.

Table A-4. Variation in Grade 4 Math Scores attributable to schools in Armenia and comparator countries and proportion of variance explained

	Armenia	Bulgaria	Croatia	Georgia	Kazakhstan	Serbia	Russia
Estimate	24.8%	40.4%	12.5%	28.6%	62.1%	12.6%	41.9%
Standard Error	3.1%	5.2%	2.2%	4.2%	2.9%	2.6%	3.7%
Explained Residual Variance at student level	19.2%	27.3%	36.7%	19.8%	10.3%	35.6%	27.1%

Note: Percentages in the first and second rows of the table are the Intraclass Correlation (ICC) and its respective standard error estimated from a two-level multivariate model linear regression of the Math scores of students nested in schools using a Maximum Likelihood Estimation and House Weights. Percentages reported in the third row are calculated as the difference between the student level variance in the full model minus the equivalent variance in the null model divided by the variance in the null model.

Source: Author's own estimations based on TIMSS 2015.

Annex C.

Teacher Recruitment: Detailed Summary

Armenia requires a competitive hiring process for teachers with a public announcement of the employment opportunity within seven days of the vacancy. Exceptions for competitive hiring process of teachers include the following (i) if the position is vacant temporarily in the case of compulsory military service or parental leave, (ii) vacancies become available in the second semester of the 12th grade, (iii) hours were provided to a qualified teacher in the institution who is teaching or has taught the subject for up to one year, and (iv) there is a qualified candidate with a targeted referral. In the case of the first two clauses for expectation (i.e., (i) and (ii) above), the institution may contract an employee for a certain period of time.

The public announcement of the vacancy must be circulated in the weekly newspaper or in the local press. Applications should be received within 20 days of the announcement and the testing day for candidates should be held no later than five working days after the application deadline. Testing is conducted by a hiring commission which is formed at least three days prior to the start of the selection process and approved by the director of the institution. Typically, the hiring commission consists of five members including the principle, deputy director of education, head of the relevant department, a teacher, and a teacher from a different institution. Selection is decided by a majority of three votes.

More specifically, testing for selection is conducted on one day under the aforementioned conditions with two stages (i) a written examination and (ii) and an oral examination. For each stage, there is a 100-question examination developed by the MoESCS. The written examination is 100 multiple choice questions and conducted in a monitored setting with no additional resources. Results are disseminated on the same day. A score of 90 is considered passing and candidates are allowed to file an appeal or request copies of their submissions. Candidates that pass the written then move on to the oral examination. For the oral, candidates select five questions to answer at random. 15 minutes are allotted for preparation. Each candidate is tested individually. A passing score for the oral examination is answering three of the five questions correctly. Candidates are informed whether the answer provided is correct or incorrect immediately. The candidates that have passed both the written and oral examination are voted on by the commission through secret ballot. The winner and selected applicant is the individual who receives more than half of the commission votes. Final decisions can be appealed to the commission within an hour.

After testing, there is one last step. The final application must then submit an application directly to the director within three working days in order to conclude the employment contract. If more than one applicant is selected as a finalist on the testing day, each of them must submit an application to the director and the final selection is made by the director. An employment contract must be signed within three days of the final submission of applications.

