

Indicator C7. Which factors influence teachers' salary cost?

Highlights

- Spending on teaching staff makes up the largest share of education expenditure, and this depends on at least four factors: students' instruction hours, teachers' teaching hours, theoretical class size and teachers' salaries (see *Definitions* section). These four factors combined determine the level of teachers' salary cost per student.
- Higher education levels tend to have higher teachers' salary costs per student. On average across OECD countries, they rise from USD 3 614 per student in primary education to USD 4 424 in lower secondary education. This is mostly due to a combination of higher teachers' salaries and instruction time, and shorter teaching hours.
- The two main factors influencing annual teachers' salary costs are teachers' salaries and theoretical class sizes. Between 2015 and 2021, teachers' salaries in primary education increased in almost all OECD countries with data, and overall by 11% in real terms on average. This additional cost was often compounded by a decline of 2% in theoretical class size over this period.

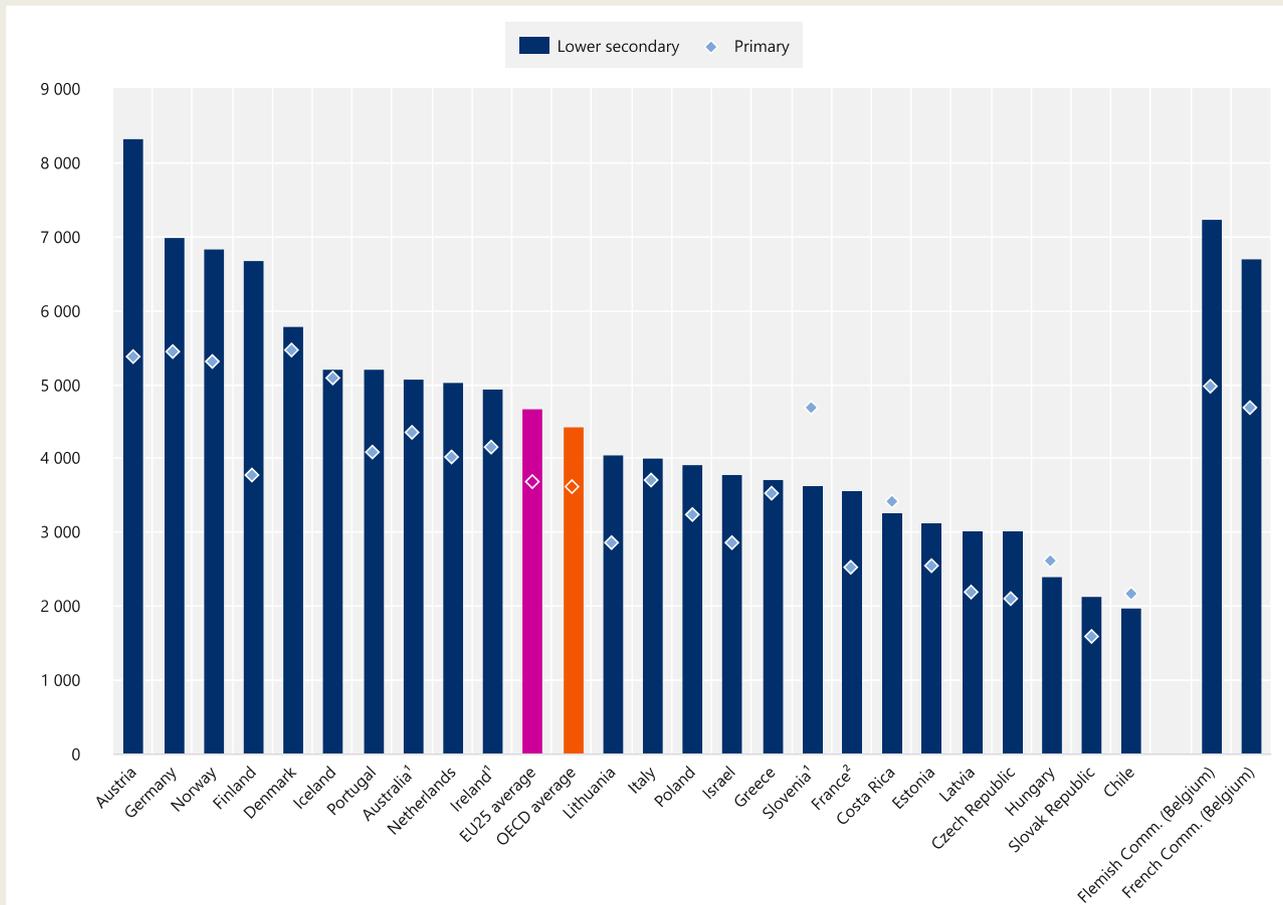
Context

Governments have become increasingly interested in the relationship between the amount of resources devoted to education and student learning outcomes. They seek to provide more and better education for their populations, while ensuring that public funding is used efficiently, particularly when public budgets are tight. Teachers' compensation usually accounts for the largest share of expenditure on education and thus of expenditure per student (see Box C7.2). The salary costs of teachers per student, as calculated in this indicator, is a function of students' instruction time, teachers' teaching time, actual teachers' salaries and theoretical class sizes (see *Methodology* section below and Box C7.1).

This indicator examines the choices countries make when investing their resources in primary and secondary education and explores how different policy choices related to these factors affect overall teachers' salary costs. Salary costs of teachers per student can be affected by other variables not directly assessed in this indicator, such as demographic changes. In countries where enrolment has been declining in recent years, class sizes would also be expected to shrink (assuming all other factors remain constant). However, there may not have been a simultaneous fall in the number of teachers (see Box C7.3). This indicator does not distinguish between a reduction in class size due to demographic changes or to a deliberate policy decision.

Figure C7.1. Annual salary cost of teachers per student in public institutions, by level of education (2021)

USD converted using PPPs for private consumption



1. Lower secondary and upper secondary education are combined for the calculation of the student-teacher ratio.
2. Reference year 2020.

Countries and other participants are ranked in descending order of the annual salary cost of teachers per student in lower secondary education.

Source: OECD (2023), Table C7.1. For more information see Source section and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023^[1]).

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Other findings

- Similar levels of expenditure among countries can mask a variety of contrasting policy choices. For example, France and Hungary have nearly the same salary cost of teachers per primary student, but teachers' actual salaries in France are about twice as high as in Hungary. France has six more students on average per class (based on the theoretical class size) than Hungary, which more than makes up for the higher salary levels.
- For a few countries, their ranking changes considerably when teachers' salary costs per student are expressed as a percentage of gross domestic product (GDP) per capita rather than in absolute USD terms. At the primary level in 2021, Denmark had the highest absolute costs (USD 5 458) but ranked only 9th with respect to its relative costs (8.4% of GDP per capita). On average across OECD countries,

the salary costs of teachers per student are equivalent to 7.3% of GDP per capita at primary level and 7.9% at lower secondary level.

- In most countries, the financial resources allocated to primary education increased during the period 2015-21, as a result of demographic changes and/or political decisions. Only 7 of the 42 countries with data available saw the number of students per teacher increase between 2015 and 2021.

Note

Teachers' salary cost per student is estimated based on values for teachers' gross actual salaries (see Indicator D3), the theoretical instruction time for students (see Indicator D1) and teachers' statutory teaching time (see Indicator D4).

The use of actual salaries means that this indicator takes into account the actual level of qualifications and the seniority of the teaching workforce. As the actual salary does not include the employer's contribution to social security nor pensions, it does not represent the full cost incurred by the employer (i.e. the government). As a result, this measure is not fully comparable to the indicator on expenditure on teacher compensation (see Indicator C6 of Education at a Glance 2022).

Analysis

Contribution of each factor to teachers' salary cost per student

The four factors determining salary costs per student affect the value in different ways. The impact of the first factor, teachers' salaries, is direct: higher salaries lead to higher salary costs. The other three factors affect it by changing the number of teachers needed, assuming that the number of students enrolled is constant. If instruction time increases or teaching time decreases, more teachers must be hired to keep class sizes constant. Similarly, more teachers would be needed to reduce class sizes while keeping everything else constant. Although linked, theoretical class sizes do not directly reflect statutory class sizes (see *Methodology* section).

By comparing salary costs to the OECD average, it is possible to determine the contribution of each of the four factors to any difference from the average. In other words, it is possible to assess whether a given salary cost is above average, for example, because of higher salaries, longer instruction time, shorter teaching hours, smaller class sizes or any combination of these four factors. Changing one of these factors may require compensatory trade-offs among the other factors in order to keep total salary cost constant.

Variation in teachers' salary cost per student by level of education

On average across OECD countries and economies, teachers' salary costs amount to USD 3 614 per primary student and USD 4 424 per lower secondary student (Figure C7.1). These averages mask a wide range of costs across countries. For example, in primary education, the salary cost per student in Denmark (USD 5 458) is over three times that in the Slovak Republic (USD 1 587).

The higher costs at lower secondary compared to primary education are mainly due to three factors: higher teachers' salaries, longer instruction times for students and shorter teaching times. In 2021, the OECD average annual salary for 25-64 year-old teachers was USD 49 115 at lower secondary level, around USD 2 300 more than the average at primary level. The average annual instruction time in lower secondary education was 105 hours longer than in primary education, while average teaching time was 65 hours shorter. This means more teachers are needed to teach a given number of students in lower secondary than in primary education (Tables C7.4 and C7.5, available on line).

Theoretical class sizes run counter to these other three factors, increasing from an average of 13.6 students at primary level to 14.4 at lower secondary level, which slightly offsets the increase in cost from the other factors. In general, however, the effect of larger class sizes is not enough to offset the other increases, although exceptions exist. Chile, Costa Rica, Hungary and Slovenia are the four OECD countries where teachers' salary costs per student are lower in lower secondary than in primary education (Tables C7.2 and C7.3 and Figure C7.1). This is mainly due to significant increases in theoretical class sizes at lower secondary level.

Variation in teachers' salary cost per student relative to countries' wealth

As the salary costs of teachers per student are positively correlated with countries' GDP per capita, it is important to also take wealth levels into account when comparing countries. On average across OECD countries, the salary cost of teachers per student corresponds to 7.3% of GDP per capita at primary level and 7.9% at lower secondary level (Table C7.1).

The interpretation of teachers' salary cost per student can change when national output is taken into account. Some countries devote a greater share of their GDP to teachers' salary costs, even though the absolute value may be low. For example, Costa Rica's salary cost of teachers in primary education is USD 3 400 per student, below the OECD average. However, this corresponds to 15.0% of the country's GDP per capita, which is 7.7 percentage points above the OECD average. In contrast, in the Netherlands, where the salary cost of teachers per student in primary education (USD 4 015) is significantly higher than the OECD average, it is only 6.3% of its GDP per capita, well below the OECD average (Table C7.1).

Box C7.1. Methodological limitations and potential future developments

It is important to consider the limitations of this indicator's methodology when interpreting the results. First, the indicator is calculated using statutory values for teaching and instruction time. This means the results presented in this indicator are theoretical in nature, and do not reflect the actual time teachers spend teaching. Indeed, even the concept of teaching and instruction time have become increasingly theoretical in nature, as learning settings become more flexible, making it difficult to accurately measure the amount of time spent on these activities.

Second, by using national figures, the indicator misses the wide discrepancies that may exist within countries. The trade-off between teachers' salaries and class size, for example, may have very different effects depending on the socio-economic status of students and schools. Moreover, the trade-offs highlighted in this analysis are only a few of the many decisions countries must take when allocating their resources. Countries must also examine potential trade-offs with other investment areas, such as teacher training and school infrastructure, as well as trade-offs between different levels of education.

Last, the breakdown of costs between primary and lower secondary is estimated in few countries because students are enrolled in the same schools, as in Norway, for example. For these countries, estimation methods may vary, so the breakdown of costs should be interpreted with caution.

Although some of these limitations are difficult to address due to current data availability, there are several possible avenues that would expand the analytical potential of this indicator were more data to become available. One relates to improving the precision when estimating the cost of teachers. To this end, it would also be relevant in the future to take into account the full cost of teachers' salaries for governments, including costs that do not go directly to teachers, such as employers' contributions and pensions.

Other avenues for potential future development include exploring the link between teachers' salary costs and school funding formulae, and how the trade-offs associated with teachers' salary costs may differ across subnational levels of decision making, such as schools, school districts and municipalities.

Different policies in countries with similar spending

Figure C7.2 shows the wide variety of combinations of the four factors across countries and their different effects on the salary cost of teachers per student. The size of the contribution each factor makes to the difference between a country's salary cost and the OECD average depends on the difference between the factor itself and the respective OECD average. The sum of each factor's contribution equals the difference in salary cost between that country and the OECD average. For example, the salary cost per student in primary education in Australia is USD 4 336, which is USD 722 higher than the OECD average. This difference is the result of the following contributory effects: above-average teachers' salaries add USD 1 165 above-average instruction time adds USD 896, above-average teaching time subtracts USD 489 and above-average theoretical class sizes subtract USD 851 (Table C7.2).

Higher levels of expenditure on education cannot automatically be equated with better performance by education systems. This can be seen when comparing the average performance of 15-year-olds on the OECD Programme for International Student Assessment (PISA) 2018 reading literacy scale with cumulative spending per student between the ages of 6 and 15 in 2018 (OECD, 2020^[2]). This is not surprising, as expenditure figures do not necessarily account for structural factors affecting learning outcomes (such as demographic changes). In addition, countries spending similar amounts on education do not necessarily have similar education policies and practices. For example, France and Hungary have nearly the same teachers' salary costs per primary student, but teachers' actual salaries in France are about twice those than in Hungary, which is more than balanced out by classes in France having about six more students on average (based on the theoretical class size). To illustrate the wide range of policy choices that countries have made despite similar spending levels, the countries shown in Figure C7.2 are divided into four groups with similar teachers' salary costs per student (see *Methodology* section).

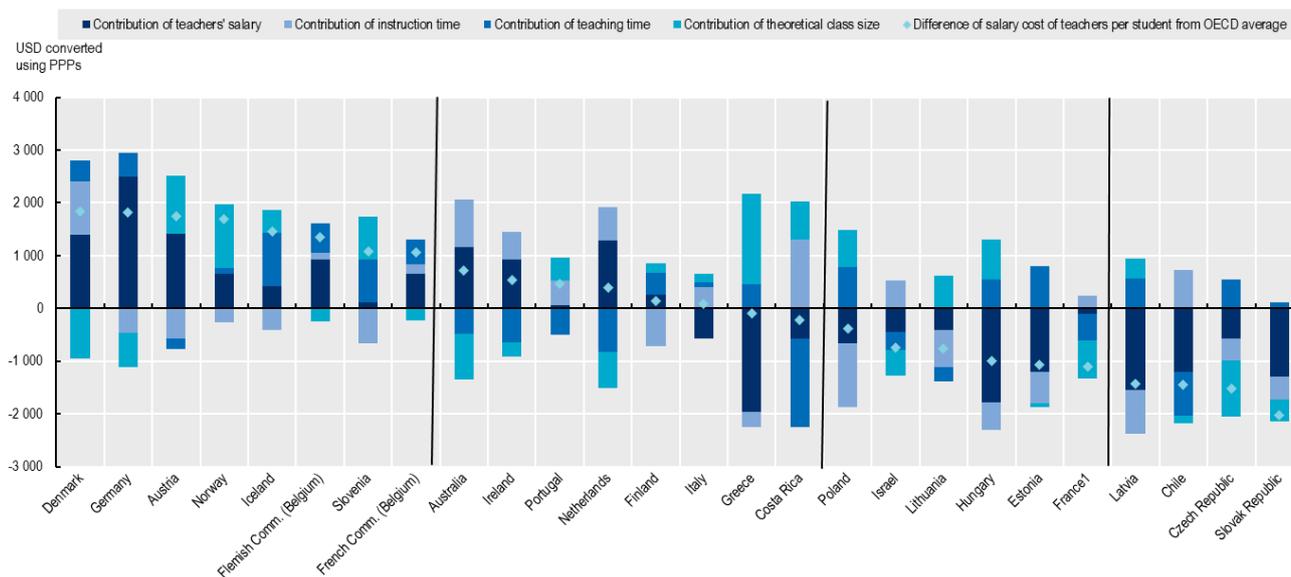
Group 1: High teachers' salary cost per student in primary education

This group, which has the highest salary cost of teachers per student in primary education, comprises eight countries and other participants (Figure C7.2). Teachers' salary costs in this group range from USD 4 682 per student to USD 5 458. These salary costs per student represent between 8.0% and 10.7% of their respective GDP per capita (Table C7.1).

As mentioned, the four factors analysed in this indicator affect salary costs per student in different ways, allowing them to counterbalance each other. However, the high-spending countries in this group tend to share more similarities between the four factors than the countries in other groups. They all pay above-average teacher salaries and all of them except Austria have below-average teaching time. However, the drivers behind these high teachers' salary costs per student still differ across the group. In Austria, Denmark and Germany, the high cost is mostly the result of high teachers' salaries whereas in Norway it mainly stems from small theoretical class sizes, and in Iceland and Slovenia from shorter teaching time.

Figure C7.2. Contribution of various factors to salary cost of teachers per student in public institutions, primary education (2021)

USD converted using PPPs for private consumption



How to read this figure: This figure shows the contribution (in USD) of the factors influencing the difference between salary cost of teachers per student in the country and the OECD average. For example, in Austria, the salary cost of teachers per student is USD 1 748 higher than the OECD average. Austria has a smaller theoretical class size (+ USD 1 099) and above-average teachers' salaries (+ USD 1 416) than the OECD average, both of which push the salary cost of teachers up. However, Austria also has above-average teaching time (- USD 199) and below-average instruction time (- USD 569), which push the cost down.

1. Reference year 2020.

Countries and other participants are ranked in descending order of the difference between the salary cost of teachers per student and the OECD average.

Source: OECD (2023), Table C7.2. For more information see Source section and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023_[1]).

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Group 2: Moderately high or average teachers' salary cost per student in primary education

There are eight countries with close-to-average or above-average salary costs (Figure C7.2). Salary costs per student in this group range from USD 3 400 to USD 4 336 (Table C7.1). The countries in this group differ widely in terms of GDP per capita and education expenditure, illustrating the variety of policy choices that countries with similar salary costs can make.

In all of these countries, except Finland and Portugal, teachers' salary costs per student reflect the result of a trade-off between teachers' salaries and theoretical class size. Australia, Ireland and the Netherlands have above-average teachers' salaries, which push the salary cost up, but these are partly offset by above-average theoretical class sizes. On the other hand, Costa Rica, Greece and Italy have significantly below-average teachers' salaries which are offset by small theoretical class sizes.

A second trade-off observed in all these countries except Italy, is between students' required instruction time and teachers' teaching time. In five countries, above-average instruction time, which increases salary costs per student, is more than entirely offset by above-average teaching time, reducing the number of teachers that need to be hired. In Costa Rica, instruction time is 43% longer than the OECD average, but this is more than fully counterbalanced by teaching time which is 59% above the OECD average.

Group 3: Moderately low teachers' salary costs per student in primary education

This group is composed of six countries with below-average salary cost of teachers per student (Figure C7.2). Teachers' salary costs in this group range from USD 2 518 per student to USD 3 238 (Table C7.1).

They all have lower than average teacher salaries. However, there are also differences between these six countries. In four of them, the below-average salary cost per student stems from a combination of low teachers' salaries and shorter instruction time. These six countries differ in how the other two factors are combined. In Estonia, Hungary and Poland, lower teachers' salaries are partially compensated by shorter teaching time, and by below-average theoretical class sizes in Hungary and Poland. This is not the case in the other three countries – France, Israel and Lithuania - where teaching time is longer than the OECD average.

Group 4: Low teachers' salary costs per student in primary education

This group is composed of the four countries with the lowest salary cost of teachers per student in primary education (Figure C7.2). Teachers' salary costs per student in this group range from USD 1 587 to USD 2 181 (Table C7.1). These countries all have below-average GDP per capita.

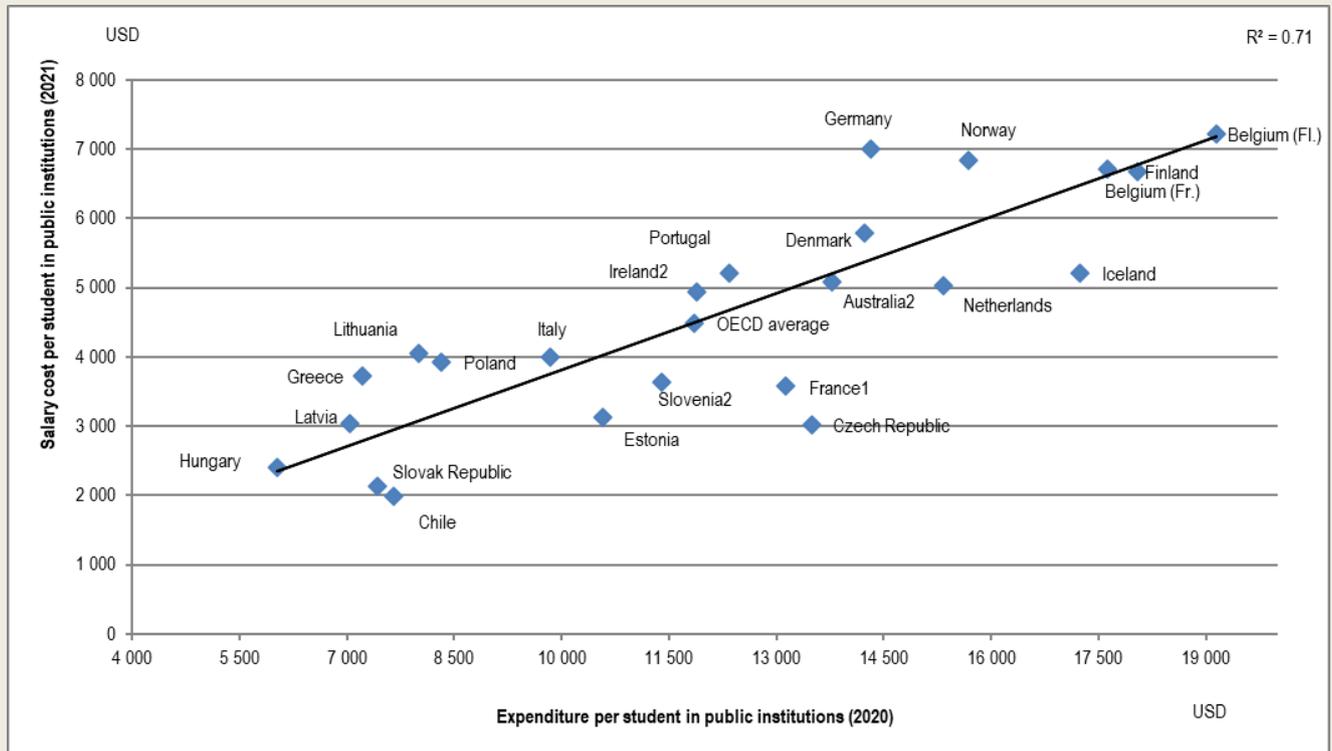
These countries have certain characteristics in common: they all have lower than average teacher salaries, shorter instruction hours (except in Chile) and larger than average theoretical class sizes (except in Latvia). The combined effect of these three factors leads to a significant reduction in the salary cost of teachers per student. However, these countries have still made different policy choices. The salary cost per student in Latvia is 37% higher than in Slovak Republic, even though teachers' salaries in both countries are fairly similar (USD 27 387 in Latvia and USD 27 610 in Slovak Republic). The difference in salary cost mainly stems from Slovak Republic having larger theoretical class sizes, with around 4 more students per class than in Latvia. In contrast, the Czech Republic has similar salary costs per student to Chile, as higher salaries in the Czech Republic are counterbalanced by larger theoretical class sizes.

Box C7.2. Relationship between salary cost per student and expenditure per student

Expenditure per student reflects structural and institutional factors, such as the organisation of schools and curricula. Current expenditure on educational institutions can be broken down into staff compensation and other expenditure (such as maintenance of school buildings, providing students' meals and rental of school buildings and other facilities). Teacher compensation usually constitutes the largest part of current expenditure and therefore of expenditure on education (see Indicator C6 of Education at a Glance 2022). As a result, the level of teacher compensation divided by the number of students – the salary cost of teachers per student – makes up the largest share of expenditure per student.

Figure C7.3. Relationship between salary cost per student and expenditure per student in lower secondary public institutions (2020 and 2021)

Salary cost converted in USD using PPPs for private consumption and expenditure converted using PPPs for GDP



1. Reference year 2020.

2. Lower secondary and upper secondary education are combined for the calculation of the student-teacher ratio.

Source: OECD (2023), Table C7.1 and *Education at a Glance Database*, <http://stats.oecd.org>. For more information see *Source* section and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023_[1]).

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Figure C7.3 plots the salary cost of teachers per student against expenditure per student in public institutions in lower secondary education. The figure shows that, as expected, there is a strong positive relationship between the two measures. However, salary costs per student can vary considerably even among countries with a similar level of expenditure per student. Greece and the Slovak Republic, for example, both spend around USD 7 000 per student in public institutions, but teachers' salary cost per student in Greece is almost twice that of the Slovak Republic.

These differences highlight the fact that countries have to decide not only how to best allocate salary cost resources across the four factors (instruction time, teaching time, teachers' salaries and theoretical class size), but also how much of their total education expenditure to dedicate to teachers' salary costs. This decision in itself implies trade-offs with other potential types of expenditure not explored in this indicator, such as non-salary compensation of teachers, salaries of non-teaching staff and infrastructure improvements.

Evolution of theoretical class sizes and teachers' salaries

Between 2015 and 2021, the salary costs of teachers per student in primary and lower secondary education increased in constant prices terms in all OECD countries except Austria (for both levels), Denmark and Slovenia (for lower secondary education only). On average among countries with data for both years, they increased by 15% (from USD 3 135 to USD 3 614) at primary level and by 6% (from USD 4 166 to USD 4 424) at lower secondary level.

At each level of education, teachers' salaries generally have the greatest impact on the degree to which countries' salary cost of teachers per student diverges from the OECD average. The second most influential factor is the theoretical class size. The trade-off between these two variables, which are often the target of educational reforms and policies, reflects the choice countries have to make between increasing teachers' salaries and hiring more teachers (Tables C7.4 and C7.5, available on line). In fact, controlling for the total salary cost of teachers, countries with higher teachers' salaries tend to have larger class sizes (OECD, 2018^[3]). Variations in the other two factors, instruction time and teaching time, are usually smaller both across countries and within countries over time, but the average is influenced by large variations in some countries.

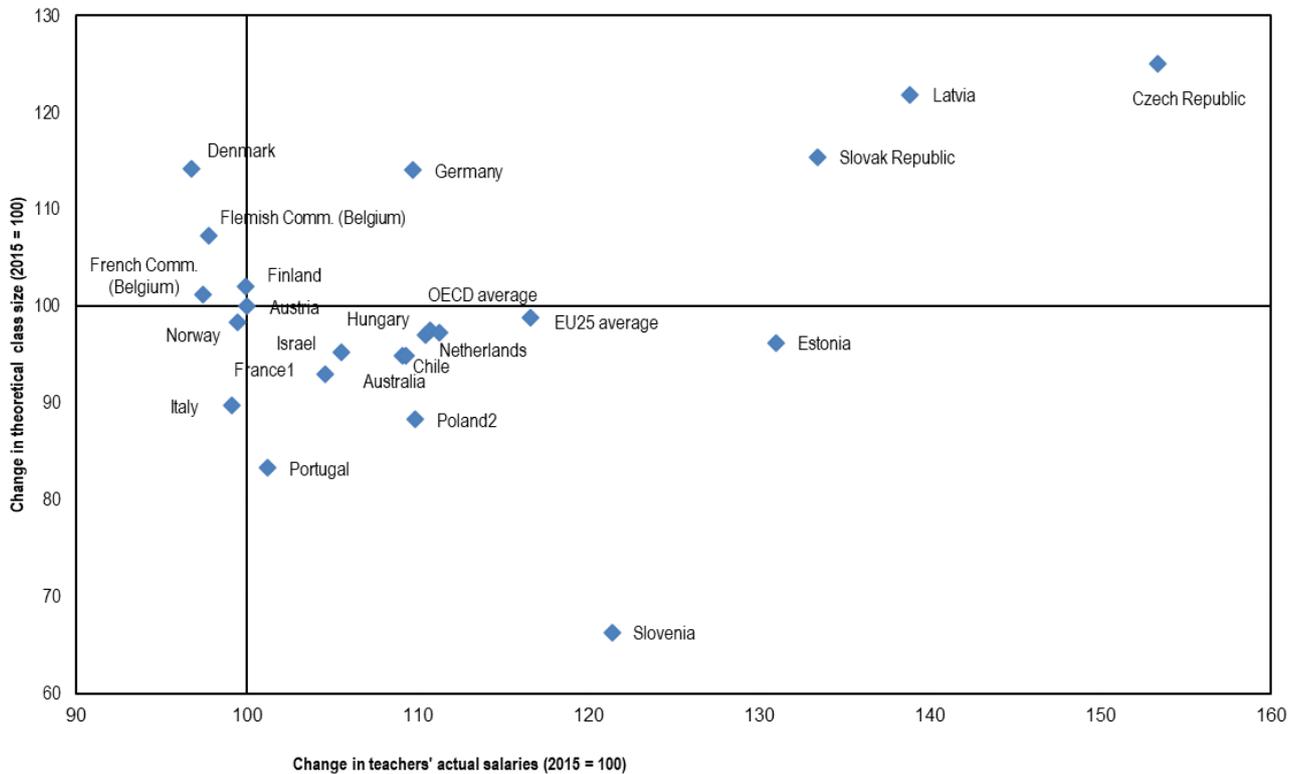
Figure C7.4 plots the evolution of teachers' actual salaries and theoretical class sizes between 2015 and 2021. During this period, among countries with available data for both years, teachers' salaries increased in real terms by 11% at the primary level, while theoretical class sizes fell by 2%. Most countries have increased teachers' salaries over this period, by more than 30% in some Eastern European countries (the Czech Republic, Estonia, Latvia and the Slovak Republic). While the 2000s were marked by budget freezes or even cuts that had an impact on teachers' salaries, many countries appear to have made a gradual upward adjustment since 2015.

Figure C7.4 groups countries into four different categories, each represented in a quadrant of the chart. Countries in the top-right and bottom-left quadrants have made a trade-off between increasing teachers' salaries or decreasing theoretical class sizes over this period. For instance, those in the top-right quadrant increased theoretical class sizes (bringing the salary cost of teachers per student down) and increased teachers' salaries (pushing the cost up). The most notable examples are the Czech Republic and Latvia, where theoretical class sizes increased by more than 20% between 2015 and 2021, offsetting the impact of teachers' salaries, which increased by over 35%. Only two countries (Italy and Norway) made the opposite choice, with theoretical class sizes falling but somewhat compensated for by falling teachers' salaries. It is important to note that although these changes have opposite effects on salary costs, they are not necessarily made in response to each other. In Italy, for example, the reduction in the theoretical class size was mainly due to demographic changes (see Figure C7.5 in Box C7.3).

No particular trade-off between these two variables seems to have been made in the countries in the top-left and bottom-right quadrants. Those in the top-left quadrant increased theoretical class sizes and reduced teachers' salaries between 2015 and 2021, both measures that push down teachers' salary costs. In contrast, countries in the bottom-right quadrant reduced theoretical class sizes and increased teachers' salaries, both measures that increase salary costs. Globally, the size of the change in each variable differs across countries, with teachers' salaries increasing by over 30% in the Czech Republic, Estonia, Latvia and the Slovak Republic while theoretical class sizes fell by nearly 35% in Slovenia (Figure C7.4).

Figure C7.4. Index of change in teachers' salaries and in theoretical class size in primary education between 2015 and 2021

Public institutions only, 2021 constant prices



1. The index of change for teachers' actual salaries covers the period 2016-2020 instead of 2015-2021.
2. The index of change for teachers' actual salaries covers the period 2015-2022 instead of 2015-2021.

Source: OECD (2023), Table C7.5. For more information see *Source* section and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023_[11]).

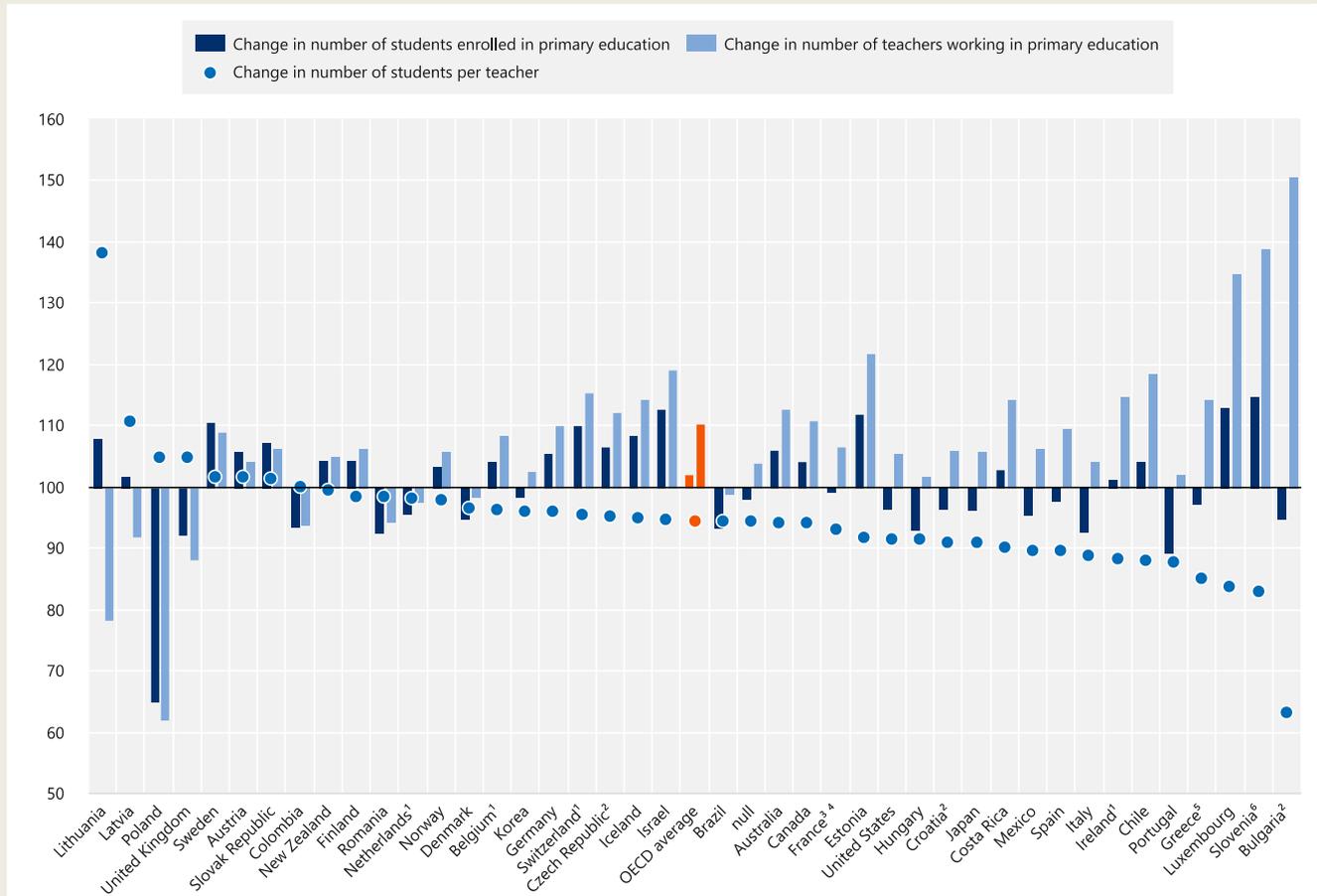
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Box C7.3. What is the impact of demographic changes on the staffing resources allocated to primary education?

Although there are large variations across countries, 20 of the 42 countries with data available experienced a decline in primary school enrolment between 2015 and 2021. This led to the number of students enrolled in primary education overall to increase by less than 2% between 2015 and 2021. These demographic changes have had very little impact on teacher recruitment, as the number of teachers working in primary education continued to increase in 33 of the 42 countries between 2015 and 2021. Together, these trends led to a significant reduction in the number of students per teacher. Only 7 of the 42 countries with data saw the number of students per teacher increase between 2015 and 2021 (Figure C7.5).

Figure C7.5. Change in number of students per teacher between 2015 and 2021

Primary education, 2015 = 100



1. Public institutions only.
2. Year of reference 2020 instead of 2021.
3. Year of reference 2016 instead of 2015.
4. Public institutions and government-dependent private institutions.
5. Year of reference 2014 instead of 2015.
6. Primary and lower secondary education together.

Source: OECD (2023), Education at a Glance Database, <http://stats.oecd.org>. For more information see *Source* section and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023^[1]).

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The fall in the number of students per teacher between 2015 and 2021 stems from three main channels. First, in 17 countries, the number of teachers increased faster than the number of students. This evolution may stem from demographic changes or deliberate policy decisions. In Ireland for example, a Teacher Supply Action Plan was implemented in 2018 to promote the teaching profession, increase the numbers of teacher graduates and review school placement guidelines (EC, 2019^[4]). These policy choices can also be understood as a catch-up effect compensating for expenditure cuts implemented in the aftermath of the 2008 financial crisis. In Slovenia for example, funding cuts in education had led to reductions in teachers' salaries and eventually to their freezing (EC, 2019^[5]). However, teachers' strikes in 2018 opened the path to increases in public sector salaries and to

additional measures to increase resources for primary education. Second, in five countries – Brazil, Colombia, Denmark, the Netherlands and Romania - the number of teachers fell between 2015 and 2021, but more slowly than the number of students. Third, 13 countries experienced both a decrease in the number of students and an increase in the number of teachers in primary education. In Croatia for instance, this took place in the context of reforms to increase the required instruction time and introduce whole-day schooling (EC, 2021^[6]).

Of the seven countries where the student-to-teaching-staff ratio increased, only two – Latvia and Lithuania - had declining numbers of teachers and increasing numbers of students. In Lithuania, for example, teacher shortages were mainly linked to its ageing teaching workforce, although, unlike in most other EU countries, teachers do not have to retire on reaching the standard pension age. In addition to its teacher age profile, less than 15% of graduates from initial teacher education actually entered the profession (EC, 2019^[7]). In the remaining countries, the increase in the number of students per teachers in primary education was driven by the number of teachers either increasing more slowly or decreasing faster than the number of students (Figure C7.5).

In some countries, the Covid-19 pandemic led to significant changes in both students' enrolment and teacher populations in primary education. The evolution in the number of students per teacher between 2015 and 2021 thus may also reflect more recent demographic trends.

Definitions

The data refer to public institutions only.

Instruction time refers to the time a public school is expected to provide instruction to students on all the subjects integrated into the compulsory and non-compulsory curriculum, on school premises or in before or after-school activities that are formal parts of the compulsory programme (see Indicator D1).

Teachers' teaching time is the annual average number of hours that full-time teachers teach a group or class of students, including all extra hours, such as overtime (see Indicator D4 of Education at a Glance 2022).

Actual salaries for teachers/school heads aged 25-64 refer to the annual average earnings received by full-time teachers/school heads aged 25-64, before taxes., converted to USD using purchasing power parity (PPP) for private consumption (see Indicator D3). It is the gross salary from the employee's point of view, since it includes the part of social security contributions and pension-scheme contributions that are paid by the employees (even if deducted automatically from the employees' gross salary by the employer). However, the employers' premium for social security and pension is excluded (see Indicator D3).

Theoretical class size refers to the theoretical size of classes given the statutory – or theoretical – values of instruction and teaching time and the student-teacher ratio (see *Methodology* section). It does not reflect the actual average class size in countries.

Methodology

The salary cost of teachers per student (SCS) is calculated as:

$$SCS = \text{Teacher salary} * \text{Instruction time} * \frac{1}{\text{Teaching time}} * \frac{1}{\text{Theoretical Class Size}}$$

Where theoretical class size is calculated as:

$$\text{Theoretical class size} = \frac{\text{Instruction time}}{\text{Teaching time}} * \frac{\text{Students}}{\text{Teachers}}$$

The contribution of each factor to the level of the salary cost of teachers per student is analysed by comparing the salary cost of teachers per student in each country to the OECD average then calculating the contribution of these different factors to the variation from the OECD average. This exercise is based on a mathematical relationship between the various factors and follows the method presented in the Canadian publication *Education Statistics Bulletin* (Quebec Ministry of Education, Recreation and Sports, 2003^[8]). Using this mathematical relationship and comparing a country's values for the four factors to the OECD averages makes it possible to measure both the direct and indirect contribution of each of these four factors to the variation in salary cost per student between that country and the OECD average.

Countries are grouped in four clusters with respect to their teachers' salary cost per student. The cluster analysis allows countries within a group to be more similar to each other than to countries in other groups. On the other hand, countries across groups are as dissimilar as possible.

Please see the *OECD Handbook for Internationally Comparative Education Statistics 2018* (OECD, 2018^[9]) for more information and *Education at a Glance 2023 Sources, Methodologies and Technical Notes*, <https://doi.org/10.1787/d7f76adc-en> for country-specific notes.

Source

Data referring to the 2022 school year are based on the UNESCO, OECD and Eurostat (UOE) data collection on education statistics and on the Survey on Teachers and the Curriculum, which were both administered by the OECD in 2022.

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Indicator C7 Tables

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Table C7.2	Contribution of various factors to salary cost of teachers per student in primary education (2021)
Table C7.3	Contribution of various factors to salary cost of teachers per student in lower secondary education (2021)
WEB Table C7.4	<i>Factors used to compute the salary cost of teachers per student in primary education (2021)</i>
WEB Table C7.5	<i>Factors used to compute the salary cost of teachers per student in lower secondary education (2021)</i>

StatLink  <https://stat.link/asz6e5>

Cut-off date for the data: 17 June 2023. Any updates on data can be found on line at <http://dx.doi.org/10.1787/eag-data-en>. More breakdowns can also be found at <http://stats.oecd.org/>, *Education at a Glance Database*.

Table C7.1. Salary cost of teachers per student, by level of education (2015 and 2021)

Annual salary cost of teachers per student in public institutions, in equivalent USD, converted using PPPs for private consumption, and in percentage of GDP per capita

	2021				2015		Index of change over the period 2015-2021 In salary cost of teachers per student (2015=100)	
	Salary cost of teachers per student (in USD)		Salary cost of teachers per student (in percentage of GDP per capita)		Salary cost of teachers per student (in USD, 2021 constant prices)			
	Primary	Lower secondary	Primary	Lower secondary	Primary	Lower secondary	Primary	Lower secondary
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD countries								
Australia ¹	4 336	5 086	7.4	8.6	3 748	4 567	116	111
Austria	5 362	8 341	8.9	13.9	5 480	8 776	98	95
Canada	m	m	m	m	m	m	m	m
Chile	2 159	1 991	7.7	7.1	1 666	1 536	130	130
Colombia	m	m	m	m	m	m	m	m
Costa Rica	3 400	3 282	15.0	14.5	m	m	m	m
Czech Republic	2 099	3 024	4.7	6.7	1 304	2 094	161	144
Denmark	5 458	5 784	8.4	8.9	5 483	5 910	100	98
Estonia	2 541	3 131	5.8	7.2	1 784	2 514	142	125
Finland	3 763	6 687	6.9	12.2	3 703	6 173	102	108
France ²	2 518	3 574	4.9	7.0	2 239	3 498	112	102
Germany	5 441	7 004	9.3	11.9	4 749	6 147	115	114
Greece	3 529	3 728	11.3	11.9	m	m	m	m
Hungary	2 612	2 406	7.1	6.6	2 151	2 293	121	105
Iceland	5 075	5 207	8.7	8.9	m	m	m	m
Ireland ^d	4 152	4 948	3.9	4.6	m	m	m	m
Israel	2 862	3 788	6.5	8.6	2 624	3 570	109	106
Italy	3 695	4 002	7.9	8.6	3 309	3 480	112	115
Japan	m	m	m	m	m	m	m	m
Korea	m	m	m	m	m	m	m	m
Latvia	2 181	3 040	6.2	8.7	1 747	2 357	125	129
Lithuania	2 853	4 048	6.5	9.3	m	m	m	m
Luxembourg	m	m	m	m	m	m	m	m
Mexico	m	m	m	m	m	m	m	m
Netherlands	4 015	5 032	6.3	7.9	3 567	4 632	113	109
New Zealand	m	m	m	m	m	m	m	m
Norway	5 311	6 839	8.4	10.8	5 218	5 671	102	121
Poland	3 238	3 921	8.6	10.4	3 105	3 688	104	106
Portugal	4 074	5 206	11.1	14.2	3 498	4 804	116	108
Slovak Republic	1 587	2 131	4.7	6.3	1 203	1 778	132	120
Slovenia ¹	4 688	3 632	10.7	8.3	2 497	4 765	188	76
Spain	m	m	m	m	m	m	m	m
Sweden	m	m	m	m	m	m	m	m
Switzerland	m	m	m	m	m	m	m	m
Türkiye	m	m	m	m	m	m	m	m
United States	m	m	m	m	m	m	m	m
Other participants								
Flemish Comm. (Belgium)	4 964	7 229	8.4	12.3	4 880	6 368	102	114
French Comm. (Belgium)	4 682	6 706	8.0	11.4	4 621	6 057	101	111
England (UK)	m	m	m	m	m	m	m	m
Scotland (UK)	m	m	m	m	m	m	m	m
OECD average ³	3 614	4 424	7.3	7.9	3 135	4 166	115	106
Partner and/or accession countries								
Argentina	m	m	m	m	m	m	m	m
Brazil	m	m	m	m	m	m	m	m
Bulgaria	m	m	m	m	m	m	m	m
China	m	m	m	m	m	m	m	m
Croatia	m	m	m	m	m	m	m	m
India	m	m	m	m	m	m	m	m
Indonesia	m	m	m	m	m	m	m	m
Peru	m	m	m	m	m	m	m	m
Romania	m	m	m	m	m	m	m	m
Saudi Arabia	m	m	m	m	m	m	m	m
South Africa	m	m	m	m	m	m	m	m
EU25 average	3 673	4 679	7.5	9.4	3 254	4 431	113	106
G20 average	m	m	m	m	m	m	m	m

Note: See Box C7.4 and StatLink for the notes related to this Table. For more information see Source section and Education at a Glance 2023 Sources, Methodologies and Technical Notes (OECD, 2023^[1])

Table C7.2. Contribution of various factors to salary cost of teachers per student in primary education (2021)

Public institutions only, in equivalent USD, converted using PPPs for private consumption

	Salary cost of teachers per student (2021)	Difference (in USD) from the 2021 OECD average of USD 3 614	Contribution of the underlying factors to the difference from the OECD average			
			Effect (in USD) of actual teachers' salary below/above the 2021 OECD average of USD 46 816	Effect (in USD) of instruction time (for students) below/above the 2021 OECD average of 800 hours	Effect (in USD) of teaching time (for teachers) below/above the 2021 OECD average of 762 hours	Effect (in USD) of theoretical class size below/above the 2021 OECD average of 13.6 students per class
	(1)	(2) = (3)+(4)+(5)+(6)	(3)	(4)	(5)	(6)
OECD countries						
Australia	4 336	722	1 165	896	-489	-851
Austria	5 362	1 748	1 416	-569	-199	1 099
Canada	m	m	m	m	m	m
Chile	2 159	-1 455	-1 210	731	-824	-153
Colombia	m	m	m	m	m	m
Costa Rica	3 400	-214	-571	1 310	-1 760	718
Czech Republic	2 099	-1 515	-567	-416	544	-1 077
Denmark	5 458	1 844	1 395	1 009	391	-951
Estonia	2 541	-1 073	-1 207	-591	793	-69
Finland	3 763	149	261	-710	419	179
France ¹	2 518	-1 096	-99	237	-506	-727
Germany	5 441	1 827	2 496	-458	447	-658
Greece	3 529	-85	-1 958	-291	452	1 712
Hungary	2 612	-1 002	-1 775	-525	538	760
Iceland	5 075	1 461	429	-404	1 007	430
Ireland	4 152	538	921	526	-652	-257
Israel	2 862	-752	-446	520	-338	-487
Italy	3 695	81	-576	397	89	171
Japan	m	m	m	m	m	m
Korea	m	m	m	m	m	m
Latvia	2 181	-1 433	-1 541	-837	563	382
Lithuania	2 853	-762	-409	-697	-279	624
Luxembourg	m	m	m	m	m	m
Mexico	m	m	m	m	m	m
Netherlands	4 015	401	1 282	626	-816	-692
New Zealand	m	m	m	m	m	m
Norway	5 311	1 697	647	-267	124	1 193
Poland	3 238	-376	-670	-1 197	774	717
Portugal	4 074	460	54	476	-505	434
Slovak Republic	1 587	-2 027	-1 290	-431	111	-418
Slovenia	4 688	1 074	121	-665	808	810
Spain	m	m	m	m	m	m
Sweden	m	m	m	m	m	m
Switzerland	m	m	m	m	m	m
Türkiye	m	m	m	m	m	m
United States	m	m	m	m	m	m
Other participants						
Flemish Comm. (Belgium)	4 964	1 350	917	131	555	-253
French Comm. (Belgium)	4 682	1 068	648	181	470	-231
England (UK)	m	m	m	m	m	m
Scotland (UK)	m	m	m	m	m	m
OECD average	3 614	0	0	0	0	0
Partner and/or accession countries						
Argentina	m	m	m	m	m	m
Brazil	m	m	m	m	m	m
Bulgaria	m	m	m	m	m	m
China	m	m	m	m	m	m
Croatia	m	m	m	m	m	m
India	m	m	m	m	m	m
Indonesia	m	m	m	m	m	m
Peru	m	m	m	m	m	m
Romania	m	m	m	m	m	m
Saudi Arabia	m	m	m	m	m	m
South Africa	m	m	m	m	m	m
EU25 average	3 673	58	-29	-190	200	78
G20 average	m	m	m	m	m	m

Note: See Box C7.4 and StatLink for the notes related to this Table. For more information see Source section and Education at a Glance 2023 Sources, Methodologies and Technical Notes (OECD, 2023_[1])

Table C7.3. Contribution of various factors to salary cost of teachers per student in lower secondary education (2021)

Public institutions only, in equivalent USD, converted using PPPs for private consumption

	Salary cost of teachers per student (2021)	Difference (in USD) from the 2021 OECD average of USD 4 424	Contribution of the underlying factors to the difference from the OECD average			
			Effect (in USD) of actual teachers' salary below/above the 2021 OECD average of USD 49 115	Effect (in USD) of instruction time (for students) below/above the 2021 OECD average of 904 hours	Effect (in USD) of teaching time (for teachers) below/above the 2021 OECD average of 697 hours	Effect (in USD) of the optimal class size below/above the 2021 OECD average of 14.4 students per class
	(1)	(2) = (3)+(4)+(5)+(6)	(3)	(4)	(5)	(6)
OECD countries						
Australia ¹	5 086	662	1 191	555	-884	-200
Austria	8 341	3 918	2 346	-30	706	896
Canada	m	m	m	m	m	m
Chile	1 991	-2 432	-1 381	521	-1 154	-418
Colombia	m	m	m	m	m	m
Costa Rica	3 282	-1 142	-93	849	-2 267	369
Czech Republic	3 024	-1 399	-941	-50	377	-785
Denmark	5 784	1 360	1 381	1 455	54	-1 531
Estonia	3 131	-1 293	-1 657	-360	518	206
Finland	6 687	2 264	689	-628	869	1 334
France ²	3 574	-849	120	231	-128	-1 073
Germany	7 004	2 581	3 423	-54	491	-1 280
Greece	3 728	-695	-2 204	-664	707	1 465
Hungary	2 406	-2 018	-2 031	-451	271	193
Iceland	5 207	783	247	-363	698	202
Ireland ¹	4 948	525	1 053	101	-16	-613
Israel	3 788	-636	-447	369	-40	-518
Italy	4 002	-422	-580	384	579	-804
Japan	m	m	m	m	m	m
Korea	m	m	m	m	m	m
Latvia	3 040	-1 383	-1 962	-523	-369	1 471
Lithuania	4 048	-376	-750	-350	-874	1 599
Luxembourg	m	m	m	m	m	m
Mexico	m	m	m	m	m	m
Netherlands	5 032	608	2 322	491	-157	-2 048
New Zealand	m	m	m	m	m	m
Norway	6 839	2 415	549	-191	281	1 777
Poland	3 921	-502	-967	-700	1 513	-348
Portugal	5 206	783	-291	-386	212	1 248
Slovak Republic	2 131	-2 293	-1 800	-318	253	-427
Slovenia ¹	3 632	-791	-18	-668	429	-534
Spain	m	m	m	m	m	m
Sweden	m	m	m	m	m	m
Switzerland	m	m	m	m	m	m
Türkiye	m	m	m	m	m	m
United States	m	m	m	m	m	m
Other participants						
Flemish Comm. (Belgium)	7 229	2 806	937	289	707	873
French Comm. (Belgium)	6 706	2 282	489	-57	641	1 209
England (UK)	m	m	m	m	m	m
Scotland (UK)	m	m	m	m	m	m
OECD average	4 424	0	0	0	0	0
Partner and/or accession countries						
Argentina	m	m	m	m	m	m
Brazil	m	m	m	m	m	m
Bulgaria	m	m	m	m	m	m
China	m	m	m	m	m	m
Croatia	m	m	m	m	m	m
India	m	m	m	m	m	m
Indonesia	m	m	m	m	m	m
Peru	m	m	m	m	m	m
Romania	m	m	m	m	m	m
Saudi Arabia	m	m	m	m	m	m
South Africa	m	m	m	m	m	m
EU25 average	4 679	255	-22	-114	339	53
G20 average	m	m	m	m	m	m

Note: See Box C7.4 and StatLink for the notes related to this Table. For more information see Source section and Education at a Glance 2023 Sources, Methodologies and Technical Notes (OECD, 2023^[1])

Box C7.4. Notes for Indicator C7 Tables

Table C7.1. Salary cost of teachers per student, by level of education (2015 and 2021)

Teachers' salaries used in the calculation of this indicator refer to the annual actual teachers' salaries in public institutions (Indicator D3). Instruction time refers to the average number of hours per year of compulsory instruction time (Indicator D1) and teaching time refers to the statutory net teaching hours over the school year (Indicator D4). The reference year for these factors may differ by one year for some countries. See Tables C7.4 and C7.5, available on line, for notes on each factor.

1. Lower secondary and upper secondary education are combined for the calculation of the student-teacher ratio.
2. Reference years 2020 instead of 2021 and 2016 instead of 2015.
3. The OECD average only includes OECD countries and other participants with data for all factors used to calculate salary cost.

Table C7.2. Contribution of various factors to salary cost of teachers per student in primary education (2021)

Teachers' salaries used in the calculation of this indicator refer to the annual actual teachers' salaries in public institutions (Indicator D3). Instruction time refers to the average number of hours per year of compulsory instruction time (Indicator D1) and teaching time refers to the statutory net teaching hours over the school year (Indicator D4). The reference year for these factors may differ by one year for some countries. See Tables C7.4 and C7.5, available on line, for notes on each factor.

1. Reference year 2020.

Table C7.3. Contribution of various factors to salary cost of teachers per student in lower secondary education (2021)

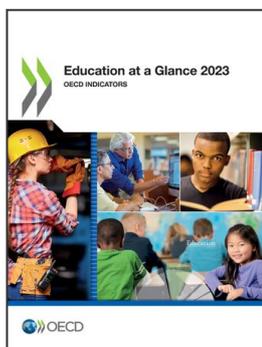
Teachers' salaries used in the calculation of this indicator refer to the annual actual teachers' salaries in public institutions (Indicator D3). Instruction time refers to the average number of hours per year of compulsory instruction time (Indicator D1) and teaching time refers to the statutory net teaching hours over the school year (Indicator D4). The reference year for these factors may differ by one year for some countries. See Tables C7.4 and C7.5, available on line, for notes on each factor.

1. Lower secondary and upper secondary education are combined for the calculation of the student-teacher ratio.
2. Reference years 2020.

For more information see *Definitions, Methodology and Source* sections and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023^[1]).

Data and more breakdowns are available in the Education at a Glance Database (<http://stats.oecd.org/>).

Please refer to the Reader's Guide for information concerning symbols for missing data and abbreviations.



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