

Education at a Glance 2023

Country note

Germany

This country note provides an overview of the key characteristics of the education system in Germany. It draws on data from *Education at a Glance 2023*. In line with the thematic focus of this year's *Education at a Glance*, it emphasises vocational education and training (VET), while also covering other parts of the education system. Data in this note are provided for the latest available year. Readers interested in the reference years for the data are referred to the corresponding tables in *Education at a Glance 2023*.

Highlights

- Germany is one of only two OECD countries in which the share of 25-34 year-olds without upper secondary attainment has increased between 2015 and 2022 (from 13% to 16%). The share of young adults without formal qualification now exceeds the OECD average by two percentage points.
- In parallel, the share of young adults with tertiary attainment has increased from 30% in 2015 to 37% in 2022 in Germany. This reflects an OECD-wide trend of increasing rates of tertiary attainment.
- The increasing share of young adults in Germany having either very low or high levels of educational attainment has led to a growing educational polarisation with fewer young adults having mid-level qualifications. The share of 25-34 year-olds with vocational upper secondary or post-secondary non-tertiary attainment has declined from 51% in 2015 to 38% in 2022. The decline of 13 percentage points is the largest among all OECD countries and substantially larger than the average decline of two percentage points.
- The possibility to combine school and work-based learning is one of the advantages of vocational education and training. In Germany, 89% of vocational upper secondary students are enrolled in combined school and work-based programmes. This is well above the OECD average. The effectiveness of these programmes in facilitating school-to-work transitions is shown by the very high employment rates of vocational upper secondary or post-secondary non-tertiary graduates in the two years following their graduation. In Germany, 94% of graduates are employed, with only Iceland having higher employment rates in this group.
- Young adults (25-34 year-olds) with vocational upper secondary or post-secondary non-tertiary attainment earn 67% more than those without upper secondary attainment in Germany. This gap is substantially higher than the average earnings advantage of 23% across the OECD. However, among older cohorts, the earnings advantage is much smaller. 45-54 year-olds with a vocational upper secondary or post-secondary non-tertiary degree in Germany earn only 21% more than adults without upper secondary attainment, which is slightly less than the OECD average of 23% for this age group. The declining earnings advantage for older workers with vocational upper secondary attainment highlights the importance for workers to acquire additional qualifications throughout their career.

- Expenditure per student in primary to tertiary education (excluding R&D) is USD 15 767 in Germany. This is approximately USD 3 100 more than the OECD average of USD 12 647. With USD 20 394, expenditure is high in particular in vocational upper secondary education. However, relative to its GDP, Germany invests less than the OECD average into education. 4.6% of GDP are dedicated to primary to tertiary education (excluding R&D) compared to an OECD average of 5.1%.

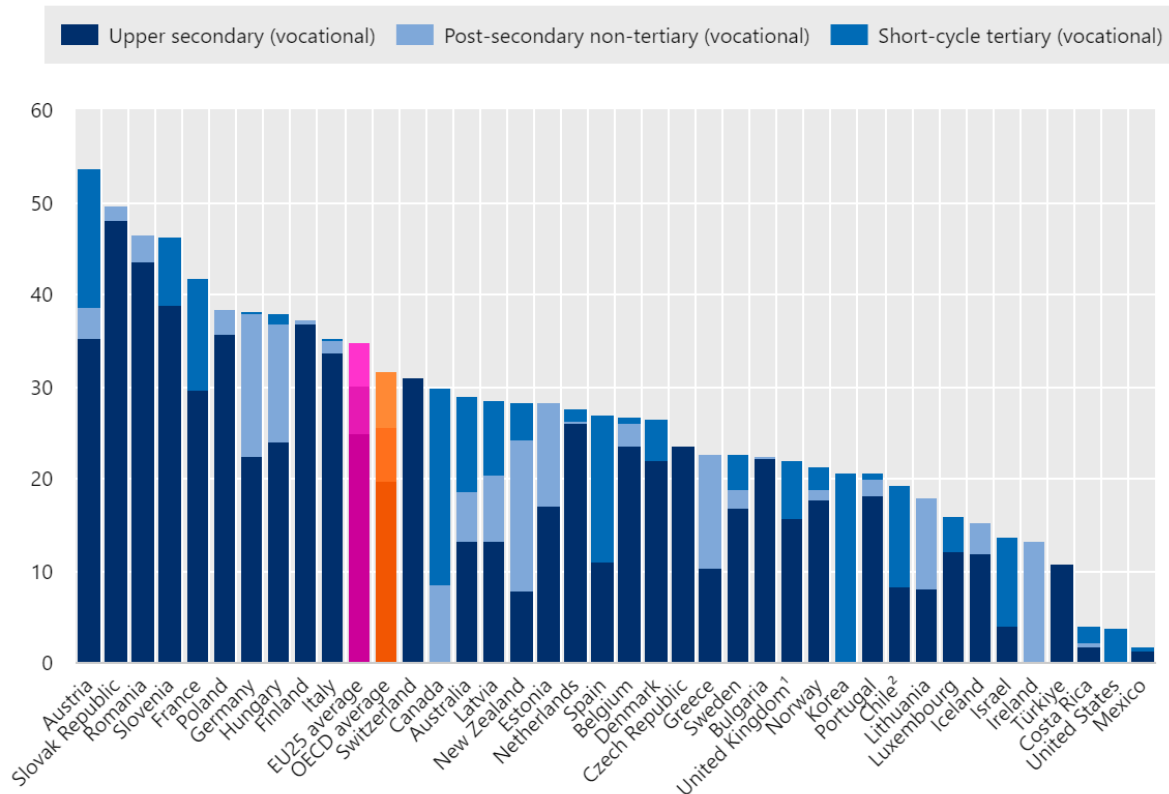
The output of educational institutions and the impact of learning

- High-quality VET programmes integrate learners into labour markets and open pathways for further personal and professional development. However, the quality and importance of VET programmes differ greatly across countries. In some countries, half of all young adults (25-34 year-olds) have a vocational qualification as their highest level of educational attainment, while the share is in the low single digits in other countries. In Germany, 38% of 25-34 year-olds have a vocational upper secondary or post-secondary non-tertiary or short-cycle tertiary attainment qualification as their highest level of attainment: 23% at upper secondary level and 15% at post-secondary non-tertiary level (Figure 1).
- Across the OECD, unemployment rates for 25-34 year-olds with vocational upper secondary attainment are lower than for their peers with general upper secondary or post-secondary non-tertiary attainment. This is also the case in Germany, where 2.8% of young adults with vocational upper secondary attainment are unemployed, compared to 5.6% of those with general upper secondary attainment.
- Although an upper secondary qualification is often the minimum attainment needed for successful labour-market participation, some 25-34 year-olds still leave education without such a qualification. On average across the OECD, 14% of young adults have not attained an upper secondary qualification. In Germany, the share is higher than the OECD average (16%).
- Workers in Germany aged 25-34 with vocational upper secondary or post-secondary non-tertiary attainment earn 67% more than those without upper secondary attainment, whereas the earning advantage for workers with general upper secondary or post-secondary non-tertiary attainment is 59%. However, in almost all OECD countries, tertiary degrees provide a significantly larger earnings advantage. In Germany, 25-34 year-old workers with bachelor's attainment (or equivalent) earn 120% more than their peers without upper secondary attainment, while those with master's or doctoral attainment (or equivalent) earn 121% more.
- Tertiary attainment continues to increase among the working age population. On average across the OECD, tertiary attainment is becoming as common as upper secondary or post-secondary non-tertiary attainment among 25-64 year-olds. In Germany, 33% of 25-64 year-olds have tertiary attainment, a smaller share than those that have upper secondary or post-secondary non-tertiary attainment (51%).
- On average across OECD countries, 14.7% of young adults aged 18-24 are not in education, employment or training (NEET), while in Germany the corresponding figure is 8.6%. Reducing NEET rates among young adults is a particularly important challenge in all countries because those who become NEET face worse labour-market outcomes later in life than their peers who remained in education or training at this age.
- As the demand for skills in the workplace changes ever more quickly, the importance of lifelong learning continues to grow. In Germany, the share of adults who participated in non-formal job-related education over a four-week reference period is 3% among 25-64 year-olds with vocational upper secondary or post-secondary non-tertiary attainment, 3% among those with general upper secondary or post-secondary non-tertiary attainment and 7% among those with tertiary attainment. This compares to average shares of 7% (vocational upper secondary or post-secondary non-

tertiary attainment), 7% (general upper secondary or post-secondary non-tertiary attainment) and 14% (tertiary) across the OECD.

Figure 1. Share of 25-34 year-olds with vocational upper secondary or postsecondary non-tertiary or short-cycle tertiary attainment (2022)

In per cent



1. Data for upper secondary attainment include completion of a sufficient volume and standard of programmes that would be classified individually as completion of intermediate upper secondary programmes (9% of adults aged 25-34 are in this group).

2. Year of reference differs from 2022. Refer to the source table for more details.

Countries are ranked in descending order of the share of 25-34 year-olds who attained vocational upper secondary, vocational post-secondary non-tertiary or vocational short-cycle tertiary education.

Source: OECD (2023), Table A1.3. For more information see *Source* section and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023_[1]).

Access to education, participation and progress

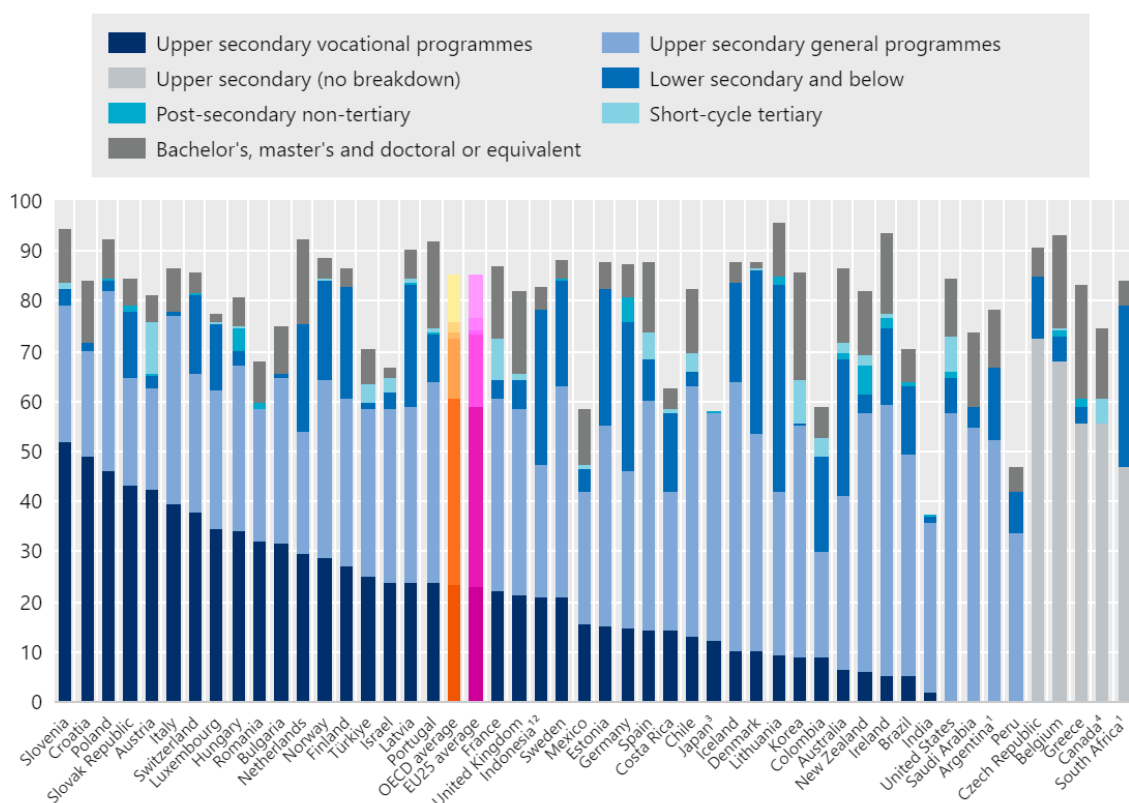
- Participation in high-quality early childhood education (ECE) has a positive effect on children's well-being, learning and development in the first years of their lives. In Germany, 67% of 2-year-olds are enrolled in ECE. This increases to 89% of 3-year-olds, 94% of 4-year-olds and 96% of 5-year-olds.
- Compulsory education in Germany starts at the age of 6 and continues until the age of 18. Students typically graduate between the ages of 18 and 19 from general upper secondary programmes. The age range for completing vocational programmes is wider, with students typically graduating from vocational upper secondary programmes between 19 and 22. This is similar to most OECD countries, where graduates from vocational upper secondary programmes have a wider

age range, reflecting the greater diversity of pathways into these programmes than for general ones.

- The large majority of 15-19 year-olds across the OECD are enrolled in education. In Germany, 31% of this age group are enrolled in general upper secondary education and 15% in vocational upper secondary education. A further 30% are enrolled in lower secondary programmes and 7% in tertiary programmes. This compares to an OECD average of 37% enrolled in general upper secondary programmes, 23% in vocational upper secondary programmes, 12% in lower secondary programmes and 12% in tertiary programmes (Figure 2).

Figure 2. Enrolment rates of 15-19 year-olds, by level of education (2021)

In per cent



1. Year of reference differs from 2021: 2020 for Argentina and South Africa; 2018 for Indonesia.

2. Excludes students enrolled at tertiary levels.

3. Breakdown by age not available after 15 years old.

4. Excludes post-secondary non-tertiary education.

Countries are ranked in descending order of the share of students enrolled in upper secondary vocational education.

Source: OECD/UIS/Eurostat (2023), Table B1.2. For more information see Source section and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023^[1]).

- Bachelor's programmes are the most popular programmes for new entrants to tertiary education. On average across the OECD, they attract 76% of all new students compared to 84% in Germany. Short-cycle tertiary programmes are the second most common level of education for new entrants into tertiary education, but their importance differs widely across countries. In Germany, they are chosen by only 1% of all new entrants.

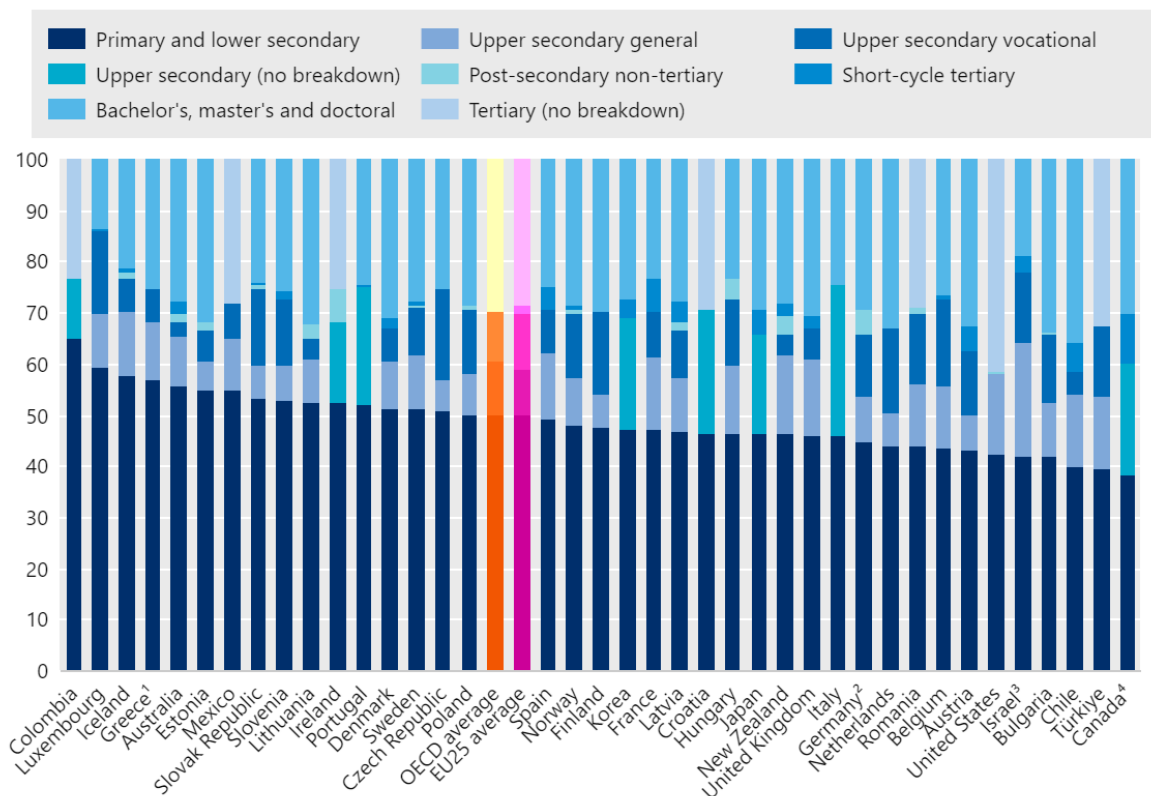
- Perhaps surprisingly, the share of international students at tertiary level has not been negatively affected by the COVID-19 pandemic in many OECD countries. However, a few countries experienced double digit declines in the share of international students. Germany is not one of them, as the share of international students increased from 10% of all tertiary students in 2019 to 11% in 2021.

Financial resources invested in education

- All OECD and partner countries devote a substantial share of their domestic output to education. In 2020, OECD countries spent on average 5.1% of their gross domestic product (GDP) on primary to tertiary educational institutions. In Germany, the corresponding share was 4.6% of GDP, of which 16% was dedicated to primary education, 29% to lower secondary education, 21% to upper secondary education, 5% to post-secondary non-tertiary education and 29% to bachelor's, master's and doctoral or equivalent programmes (Figure 3).

Figure 3. Total expenditure on primary to tertiary educational institutions, by level of education (2020)

In per cent



1. Year of reference differs from 2020. Refer to the source table for more details.

2. Upper secondary vocational programmes include lower secondary vocational programmes.

3. Upper secondary programmes include lower secondary programmes.

4. Primary education includes pre-primary programmes.

Countries are ranked in descending order of total expenditure on primary and lower secondary institutions.

Source: OECD/UIS/Eurostat (2023), Table C2.1. For more information see [Source section](#) and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023^[1]).

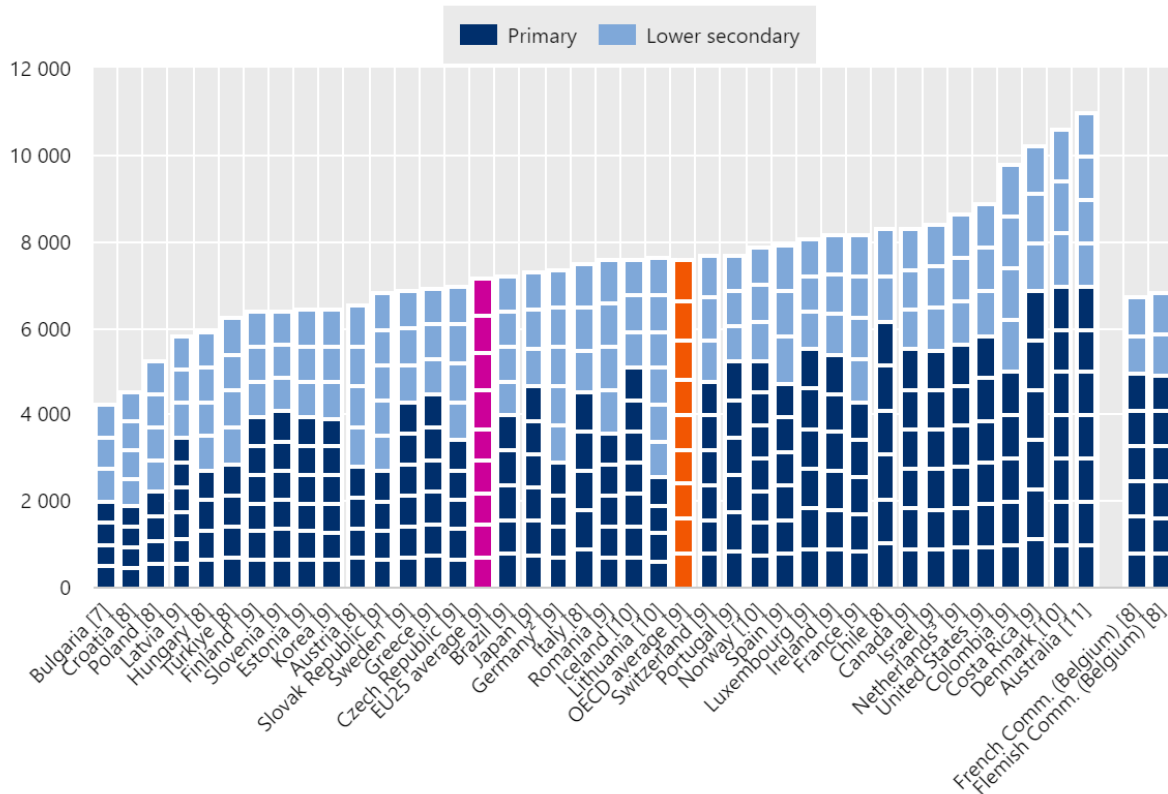
- Funding for education in absolute terms is strongly influenced by countries' income levels. Countries with higher per capita GDP tend to spend more per student than those with lower per capita GDP. Across all levels from primary to tertiary education, Germany spends USD 15 767 annually per full-time equivalent student (adjusted for purchasing power), compared to the OECD average of USD 12 647. Expenditure per student is equivalent to 28% of per capita GDP, which is slightly above the OECD average of 27%.
- The COVID-19 pandemic has created unprecedented challenges for education systems across the world. On average across the OECD, expenditure on primary to tertiary educational institutions per full-time equivalent student (including expenditure on research and development) grew by 0.4% from 2019 to 2020 (the first year of the pandemic and the latest period with available data). In Germany, it increased by 2.2%. This change in expenditure per student is the result of total expenditure on educational institutions increasing by 2.2% and the total number of full-time equivalent students staying the same. In addition, provisional data show that expenditure per student increased by 2.2% in 2021: this is the result of total expenditure on educational institutions increasing by 2.5% and the total number of full-time equivalent students increasing by 0.3%.
- The distribution of spending between general and vocational upper secondary programmes depends on a variety of factors, such as the number of VET students, the fields of study within VET programmes and the importance given to VET relative to general programmes. In Germany, 9% of all funding for educational institutions is spent on general upper secondary education and 12% on vocational upper secondary education (11% and 10% respectively on average across the OECD).
- Government sources dominate non-tertiary education funding in all OECD countries, while the private sector contributes 9% of the total expenditure on educational institutions on average. Private funding in Germany accounted for 11% of expenditure at primary, secondary and post-secondary non-tertiary levels.
- In most countries, private sources accounted for similar shares of expenditure on general and vocational programmes at upper secondary level. However, in a few countries the differences in the share of private funding between general and vocational programmes were wider. In Germany, the private sector is responsible for 3% of expenditure on general upper secondary programmes and 35% of expenditure on vocational upper secondary programmes.
- On average across OECD countries, more than half of government expenditure on primary to post-secondary non-tertiary education comes from subnational governments. In Germany, 5% of the funding comes from the central government, after transfers between government levels, 70% from the regional level and 24% from the local level.

Teachers, the learning environment and the organisation of schools

- The total compulsory instruction time throughout primary and lower secondary education varies widely from country to country (Figure 4). Across the OECD, over the course of primary and lower secondary education, compulsory instruction time totals an average of 7 634 hours, distributed over nine grades. In Germany, the total compulsory instruction time is lower, at 7 376 hours, over nine grades.
- On average across OECD countries, 25% of the compulsory instruction time in primary education is devoted to reading, writing and literature and 16% to mathematics. In lower secondary education, the share is 15% for reading, writing and literature and 13% for mathematics. In Germany, 27% of time is devoted to reading, writing and literature and 21% to mathematics at primary level and 13% each to both subjects in lower secondary education.

Figure 4. Compulsory instruction time in general education (2023)

In hours, in primary and lower secondary education, in public institutions



Note: Instruction hours for each grade refer to average hours per grade for the level of education. Numbers in square brackets refer to the total number of years for primary and lower secondary education.

1. Estimated number of hours by level of education based on the average number of hours per year, as for some subjects, the allocation of instruction time across multiple levels is flexible.

2. Year of reference 2022.

3. The number of grades in lower secondary education is three or four, depending on the track. The fourth year of pre-vocational secondary education was excluded from the calculation.

Countries and other participants are ranked in ascending order of the total number of compulsory instruction hours.

Source: OECD (2023), Table D1.1. For more information see *Source* section and [Education at a Glance 2023 Sources, Methodologies and Technical Notes](#) (OECD, 2023_[11]).

- Teachers' salaries are an important determinant of the attractiveness of the teaching profession, but they also represent the single largest expenditure category in formal education. In most OECD countries, the salaries of teachers in public educational institutions increase with the level of education they teach, and also with experience. On average, annual statutory salaries for upper secondary teachers (in general programmes) with the most prevalent qualification and 15 years of experience are USD 53 456 across the OECD. In Germany, the corresponding salary adjusted for purchasing power is USD 96 742, which is equivalent to EUR 76 317. Upper secondary teachers in vocational programmes in Germany have different statutory salaries depending on their qualification levels and subjects taught: for those with the most prevalent qualification and 15 years of experience, salaries amount to USD 92 928.
- Besides average teacher salaries themselves, annual teaching time requirements, annual hours of compulsory instruction time for students, and class size also impact total spending on teacher salaries. When combined, these factors can be used to estimate an average cost of salaries per

student and show the relative impact of each individual factor on total salary spending. Total teacher salary costs per primary student are USD 5 441 in Germany, higher than the OECD average of USD 3 614. This difference can be broken down into these four factors: higher teacher salaries increase costs (by USD 2 496), below-average teaching hours increase costs (by USD 447), below-average student instruction time reduces costs (by USD 458) and larger classes reduce costs (by USD 658). Between 2015 and 2021, the salary cost of teachers per student increased by 15% in Germany (from USD 4 749 to USD 5 441).

- Between 2015 and 2022, statutory salaries of upper secondary teachers in general programmes (with the most prevalent qualification and 15 years of experience) declined in real terms in roughly half of all OECD countries with available data. In Germany, upper secondary teachers' salaries increased by 4% between 2015 and 2022.
- On average across OECD countries, in full-time equivalent terms, there are 14 students for every teaching staff member in general upper secondary programmes and 15 students per staff member in vocational upper secondary programmes. In Germany, in full-time equivalent terms, there are 12 students per staff member in general upper secondary programmes, lower than the OECD average. In vocational upper secondary programmes, in full-time equivalent terms, there are 13 students for every teaching staff member.
- The average age of teachers varies across OECD countries. In some countries, the teaching workforce is much younger than the labour force in general, whereas in others, teachers tend to be older. In Germany, 36% of teachers in general upper secondary programmes are aged 50 or older, compared to the OECD average of 39%. Teachers in vocational programmes are older than their general programme peers, with 50% aged 50 or above (43% on average across the OECD).
- National/central assessments (standardised tests with no consequence on students' progression through school or certification) are more common at primary and lower secondary levels than at upper secondary level, while most OECD countries conduct national/central examinations (standardised tests with formal consequence) in the final years of upper secondary education. These national/central assessments and examinations take place at different grades and can have different periodicities, their contents may vary over years and/or across students and are not necessarily compulsory for students. In Germany, there are at least two national/central assessments at primary level, and at least two at lower secondary level. At upper secondary level, there is one national/central examination that each student may be expected to take.

References

- OECD (2023), *Education at a Glance 2023 Sources, Methodologies and Technical Notes*, OECD Publishing, Paris, <https://doi.org/10.1787/d7f76adc-en>. [1]
- OECD (2023), Education at a Glance Database, <https://stats.oecd.org/>. [2]
- OECD (2023), *Education at a Glance 2023: OECD Indicators*, OECD Publishing, Paris, <https://doi.org/10.1787/e13bef63-en>. [3]

More information

For more information on *Education at a Glance 2023* and to access the full set of indicators, see: <https://doi.org/10.1787/e13bef63-en>.

For more information on the methodology used during the data collection for each indicator, the references to the sources and the specific notes for each country, see *Education at a Glance 2023 Sources, Methodologies and Technical Notes* (<https://doi.org/10.1787/d7f76adc-en>).

For general information on the methodology, please refer to the *OECD Handbook for Internationally Comparative Education Statistics 2018* (<https://doi.org/10.1787/9789264304444-en>).

Updated data can be found on line at <http://dx.doi.org/10.1787/eag-data-en> and by following the *StatLinks 2* under the tables and charts in the publication.

Explore, compare and visualise more data and analysis using the Education GPS:

<https://gpseducation.oecd.org/>.

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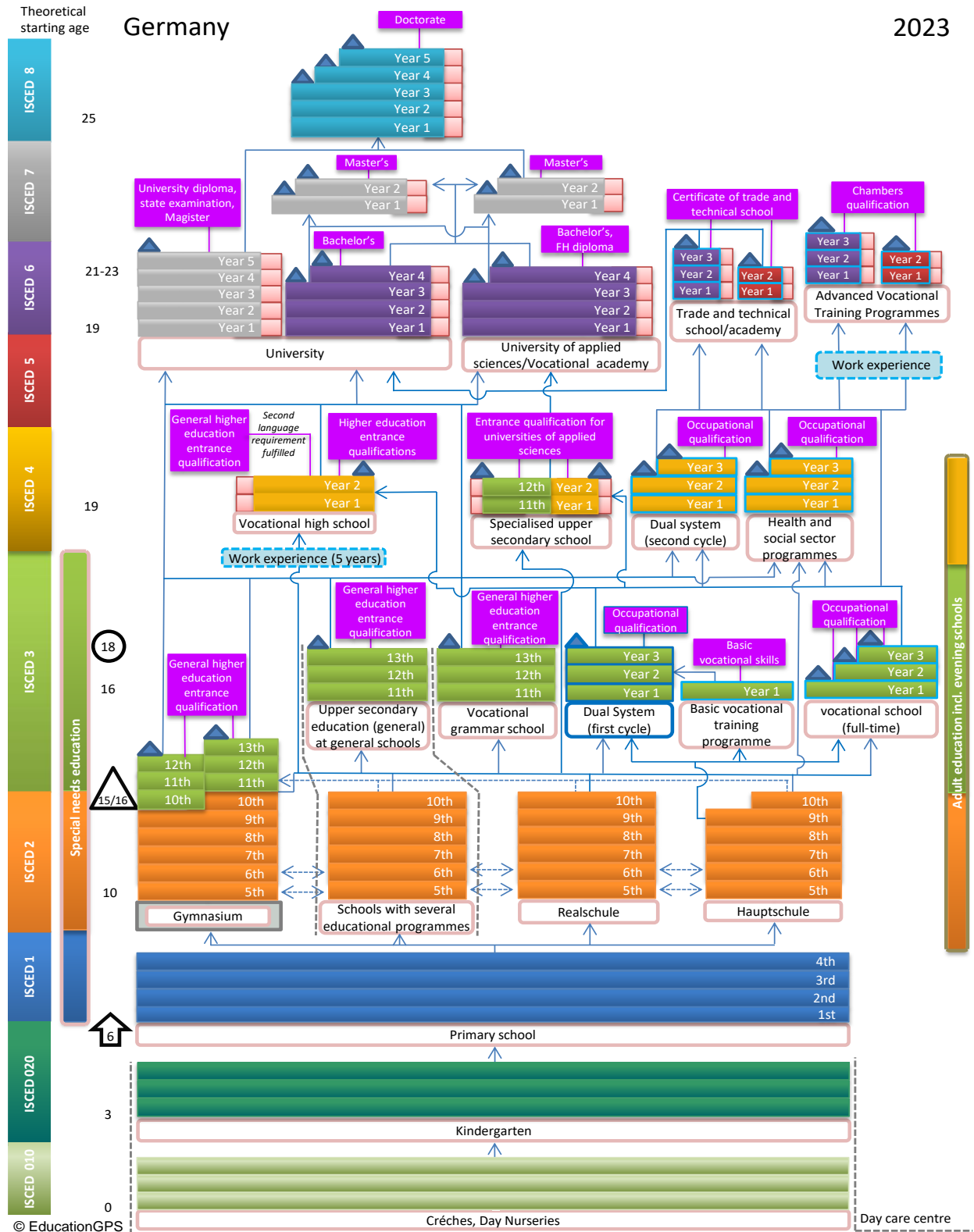
Key facts for Germany in *Education at a Glance 2023*

| Indicator | Country | | OECD average | | Source | |
|---|---|------------|--------------|------------|-----------------------------|-----|
| Educational attainment of 25-34 year-olds by gender | 2022 | | 2022 | | Table A1.2 | |
| | % Men | % Women | % Men | % Women | | |
| | Below upper secondary | 17% | 15% | 16% | | 12% |
| | Upper secondary or post-secondary non-tertiary | 48% | 46% | 44% | | 35% |
| | Tertiary | 35% | 40% | 41% | 54% | |
| NEET rates of 18-24 year-olds by gender | 2022 | | 2022 | | OECD (2023 ^[2]) | |
| | % Men | % Women | % Men | % Women | | |
| | 8.3% | 8.9% | 14% | 15.5% | | |
| Employment rates of 25-64 year-olds by educational attainment and gender | 2022 | | 2022 | | OECD (2023 ^[2]) | |
| | % Men | % Women | % Men | % Women | | |
| | Below upper secondary | 74% | 56% | 70% | | 48% |
| | Upper secondary or post-secondary non-tertiary | 86% | 80% | 84% | | 69% |
| | Tertiary | 92% | 85% | 90% | 83% | |
| Enrolment rate of children aged 3 in ECEC | 2021 | | 2021 | | Table B2.1 | |
| | 89% | | 73% | | | |
| Enrolment rate of 15-19 year-olds | 2021 | | 2021 | | Table B1.1 | |
| | 88% | | 84% | | | |
| Share of upper secondary students enrolled in VET programmes | 2021 | | 2021 | | Table B1.3 | |
| | 47% | | 44% | | | |
| Upper secondary completion rates by programme orientation | 2021 | | 2021 | | Table B3.1 | |
| | General | Vocational | General | Vocational | | |
| | By the end of the programme duration | m | m | 77% | | 62% |
| | Two years after the end of the programme duration | m | m | 87% | 73% | |
| Expenditure on educational institutions per full-time equivalent student by level of education (in USD PPP) | 2020 | | 2020 | | Table C1.1 | |
| | Primary | USD 11 587 | USD 10 658 | | | |
| | Lower secondary | USD 14 197 | USD 11 941 | | | |
| | Upper secondary | USD 18 098 | USD 12 312 | | | |
| | Tertiary | USD 20 760 | USD 18 105 | | | |
| Total expenditure on primary to tertiary educational institutions as % of GDP | 2020 | | 2020 | | Table C2.1 | |
| | 4.6% | | 5.1% | | | |
| Share of total education expenditure on upper secondary educational institutions by programme orientation | 2020 | | 2020 | | Figure C2.2 | |
| | General | Vocational | General | Vocational | | |
| | 9% | 12% | 11% | 10% | | |
| Total compulsory instruction time in primary and lower secondary education | 2022 | | 2023 | | Table D1.1 | |
| | 7 376 hours | | 7 634 hours | | | |
| Statutory salaries of upper secondary teachers in general programmes with the most prevalent qualifications after 15 years of experience (in USD PPP) | 2022 | | 2022 | | Table D3.1. | |
| | USD 96 742 | | USD 53 456 | | | |
| Change in statutory salaries of upper secondary teachers in general programmes with the most prevalent qualifications after 15 years of experience (in real terms) | 2015-2022 | | 2015-2022 | | Table D3.7 | |
| | 4% | | 4% | | | |
| Share of teachers in general upper secondary programmes aged 50 or older | 2021 | | 2021 | | Table D7.2. | |
| | 36% | | 39% | | | |

Note: The OECD average for completion rates reflects a different country coverage (see Indicator B3).

Source: OECD (2023^[2])

Diagram of the education system



Source: OECD (2023), "Germany: Diagram of education system", OECD Education GPS, http://gpseducation.oecd.org/Content/MapOfEducationSystem/DEU/DEU_2011_EN.pdf
 Please refer to "Germany: Diagram of education system" for information on the keys.