

# Education and qualification<sup>324</sup>

## C 1

The percentage of the working population in Germany with tertiary qualifications (ISCED 5+6 and ISCED 7+8) has again risen slightly. In 2018, the figure was 31.7 percent, 0.3 percentage points higher than in the previous year (C 1-1). By contrast, the percentage of people with low qualifications (ISCED 0-2) fell slightly from 10.1 to 10.0 percent. The percentage of people with low qualifications in the total workforce also declined in all reference countries – with the exception of the UK.

The number of new tertiary students as a percentage of the relevant age group (C 1-2) in Germany was 60 percent in 2017, the same level as in 2016. The adjusted rate for the under-25s and excluding international first-year students also remained constant at 45 percent. For China, data according to ISCED 2011 were available for the first time in 2017.

The rate of qualified school-leavers, i.e. the number of school-leavers qualified for higher education as a percentage of the relevant age group, again fell slightly and was 50.6 percent in 2018 (C 1-3). There were 432,414 qualified school-leavers in 2018. The Standing Conference of the Ministers of Education and Cultural Affairs (Kultusministerkonferenz, KMK) expects an increase in the ratio of qualified school-leavers in 2019. According to the KMK's projections, the number of qualified school-leavers will remain largely constant up to 2030.

In 2018, the number of first-time graduates (C 1-4) fell slightly compared to the previous year from 311,441 to 303,155. The proportion of female first-time graduates rose slightly to 53.0 percent. At the same time, the percentage of first-time graduates who completed their degree at a university fell again – from 53.9 to 53.0 percent.

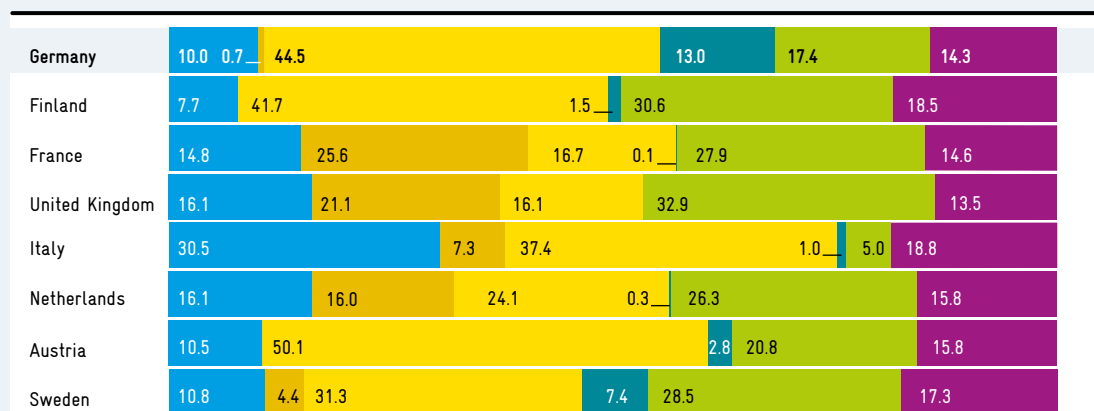
At 92,508, the number of students without German citizenship who gained their university entrance qualifications in Germany (Bildungsinländer) was almost the same in the 2018/19 winter semester as in the 2017/18 winter semester. On the other hand, the total number of foreign students in Germany increased by more than five percent compared to the previous year (C 1-5). In the 2018/19 winter semester, the number of students without German citizenship who gained their university entrance qualification abroad (Bildungsausländer) enrolled at German tertiary education institutions exceeded 300,000 for the first time. Their number was thus 38 percent higher than in the winter semester five years earlier.

The further-training rate among persons aged between 25 and 64 (C 1-6) fell slightly compared to 2017 and stood at 4.9 percent in 2018. The further-training rates of low- and medium-skilled gainfully employed people each fell by 0.2 percentage points. In 2017, the rate of corporate participation in further training reached 53.0 percent, 0.2 percentage points down on the previous year.

Fig. C 1-1

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### Qualification levels of gainfully employed persons in selected EU countries in 2018 as percentages<sup>1)</sup>



Classification of the ISCED qualification levels.<sup>2)</sup>

- ISCED 0-2: (Pre)primary and lower secondary education
- ISCED 3\*: General and vocational upper secondary education without direct access to tertiary education
- ISCED 3\*\*: General and vocational upper secondary education with direct access to tertiary education
- ISCED 4: Post-secondary non-tertiary education, (Abitur school-leaving examination and apprenticeship)
- ISCED 5+6: Short, career-related tertiary education (2 to less than 3 years), Bachelor's degree, training as a master craftsman or technician or equivalent vocational school qualification.
- ISCED 7+8: Master's degree, doctoral degree or equivalent qualification

<sup>1)</sup> Figures that do not add up to 100 percent: graduation level unknown.

<sup>2)</sup> UNESCO uses the ISCED classification of educational levels as standards for international comparisons of country-specific education systems. They are also used by the OECD.

Source: Eurostat, European Labour Force Survey. Calculation by CWS in Gehrke et al. (2020a).

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## Number of new tertiary students as a percentage of the relevant age group in selected OECD countries and China 2006–2017

Tab. C 1-2

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University entry rate: number of new tertiary students as a percentage of the relevant age group.

OECD countries <sup>1)</sup>	2006	2009	2012	2013 <sup>2)</sup>	2014 <sup>2)</sup>	2015 <sup>2)</sup>	2016 <sup>2)</sup>	2017 <sup>2)</sup>	2013 <sup>3)</sup>	2014 <sup>3)</sup>	2015 <sup>3)</sup>	2016 <sup>3)</sup>	2017 <sup>3)</sup>
Belgium	35	31	34	67	67	69	72	76	54	57	59	62	67
China	–	17	18	–	–	–	–	67	–	–	–	–	–
Germany	35	40	53	59	64	63	60	60	45	48	48	45	45
Finland	76	69	66	55	53	56	58	59	41	40	42	42	43
United Kingdom	57	61	67	58	61	69	64	74	42	44	50	48	53
Italy	56	50	47	42	44	46	48	50	–	–	41	41	43
Japan	45	49	52	–	80	80	80	79	–	–	–	–	–
Sweden	76	68	60	56	62	62	62	63	40	42	41	40	41
Switzerland	38	41	44	–	–	–	–	–	–	36	47	47	47
USA	64	70	71	52	52	52	52	49	47	47	46	46	44
OECD average	56	59	58	67	68	66	66	65	50	51	48	49	50

<sup>1)</sup> To date, no ISCED 2011 figures are available for France or South Korea. These countries are therefore not included in the table. Three European OECD countries have been added instead: Belgium, Finland and Italy.

<sup>2)</sup> The table shows the university entry rates according to the ISCED classification for levels 5, 6, 7 and 8. Please note: figures from 2013 and later were compiled according to ISCED 2011, figures before 2013 according to ISCED 1997; this table is therefore not comparable with previous years. ISCED 2011 used here has nine levels, while ISCED 1997 had only seven. ISCED 2011 distinguishes between four instead of two levels in the field of tertiary-level education (ISCED 1997: Levels 5A and 6; ISCED 2011: Levels 5 to 8) and enables a distinction to be made between 'general and vocational upper secondary education without direct access to tertiary education (ISCED 3\*)' on the one hand and 'general and vocational upper secondary education with direct access to tertiary education (ISCED 3\*\*)' on the other.

<sup>3)</sup> Adjusted rate for under-25s, excluding new international tertiary students.

Sources: OECD (ed.): Education at a glance. OECD indicators, various years in Gehrke et al. (2020a).

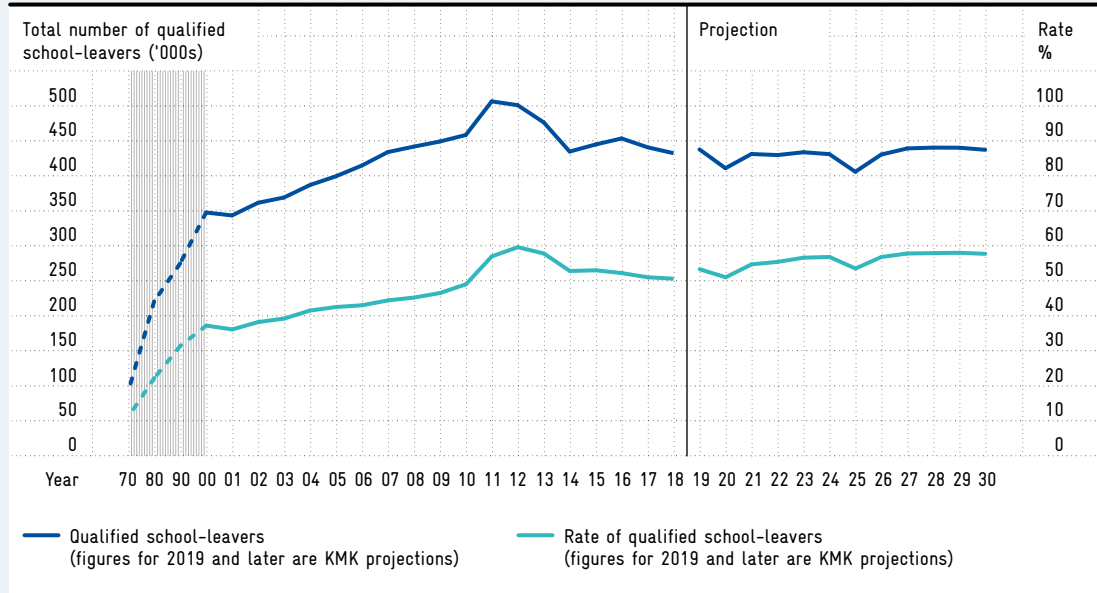
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Fig. C 1-3

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### School-leavers qualified for higher education in Germany 1970–2030 (figures for 2019 and later are projections)

School-leavers qualified for higher education: either with a 'general' or a 'technical' school-leaving certificate\* (in Germany Abitur).  
Rate of qualified school-leavers: number of school-leavers qualified for higher education as a percentage of the relevant age group.



\* Since 2013, actual figures no longer include school leavers who have passed the school part of the 'technical' Abitur.  
Source of actual figures: Statistisches Bundesamt (Federal Statistical Office) in Gehrke et al. (2020a).  
Source of forecast figures: statistical publications by The Standing Conference of the Ministers of Education and Cultural Affairs (Kultusministerkonferenz, KMK) in Gehrke et al. (2020a).  
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Tab. C 1-4

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## Number of first-time graduates and subject-structure rate<sup>1)</sup> 2010–2018

First-degree graduates and subject-structure rate: the subject-structure rate indicates the percentage of first-degree graduates who have completed their studies in a particular subject or group of subjects. First-degree graduates are persons who have successfully completed a first degree.

	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Total number of graduates<sup>2)</sup></b>	<b>294,330</b>	<b>307,271</b>	<b>309,621</b>	<b>309,870</b>	<b>313,796</b>	<b>317,102</b>	<b>315,168</b>	<b>311,441</b>	<b>303,155</b>
Percentage of women	52.1	51.4	51.3	51.5	51.2	51.1	52.0	52.6	53.0
Percentage of graduates from universities	62.0	62.1	61.3	59.9	59.0	56.8	54.7	53.9	53.0
<b>Humanities</b>	<b>38,385</b>	<b>39,435</b>	<b>38,444</b>	<b>38,247</b>	<b>38,788</b>	<b>37,135</b>	<b>34,886</b>	<b>32,205</b>	<b>30,491</b>
Percentage of subject group	13.0	12.8	12.4	12.3	12.4	11.7	11.1	10.3	10.1
<b>Legal, economics and social sciences</b>	<b>119,289</b>	<b>122,294</b>	<b>122,239</b>	<b>123,171</b>	<b>125,628</b>		<b>132,737</b>	<b>134,605</b>	<b>131,832</b>
Percentage of subject group	40.5	39.8	39.5	39.7	40.0	40.5	42.1	43.2	43.5
<b>Human medicine, health sciences</b>	<b>15,222</b>	<b>15,686</b>	<b>15,856</b>	<b>16,534</b>	<b>17,331</b>	<b>17,935</b>	<b>19,521</b>	<b>20,308</b>	<b>20,101</b>
Percentage of subject group	5.2	5.1	5.1	5.3	5.5	5.7	6.2	6.5	6.6
<b>Agriculture, forestry, and food sciences, veterinary medicine</b>	<b>7,125</b>	<b>7,521</b>	<b>7,345</b>	<b>7,158</b>	<b>7,008</b>	<b>7,442</b>	<b>6,978</b>	<b>7,148</b>	<b>7,252</b>
Percentage of subject group	2.4	2.4	2.4	2.3	2.2	2.3	2.2	2.3	2.4
<b>Arts, art history</b>	<b>11,820</b>	<b>12,525</b>	<b>12,866</b>	<b>12,542</b>	<b>11,913</b>	<b>11,514</b>	<b>11,268</b>	<b>11,119</b>	<b>10,892</b>
Percentage of subject group	4.0	4.1	4.2	4.0	3.8	3.6	3.6	3.6	3.6
<b>Mathematics, natural sciences</b>	<b>32,800</b>	<b>34,096</b>	<b>32,793</b>	<b>31,665</b>	<b>31,635</b>	<b>30,001</b>	<b>28,081</b>	<b>26,261</b>	<b>25,677</b>
Percentage of subject group	11.1	11.1	10.6	10.2	10.1	9.5	8.9	8.4	8.5
<b>Engineering</b>	<b>65,621</b>	<b>71,128</b>	<b>75,697</b>	<b>77,049</b>	<b>78,018</b>	<b>81,300</b>	<b>78,552</b>	<b>76,133</b>	<b>73,849</b>
Percentage of subject group	22.3	23.1	24.4	24.9	24.9	25.6	24.9	24.4	24.4

<sup>1)</sup> The Federal Statistical Office's new subject-group classification has been in use since the 2015/16 winter semester. Apart from minor changes, such as renaming of some study subjects or the merger of veterinary medicine with agriculture, forestry and food sciences, there were two major re-classifications. The subject group legal, economics and social sciences now also includes psychology, education and special needs education, which used to be assigned to language and cultural sciences (now called humanities). Since the changeover, computer science has been counted under engineering and not, as previously, as part of mathematics, natural sciences. Furthermore, a new area of study called materials science and materials engineering was introduced under engineering; materials science and materials engineering were previously assigned to mechanical engineering. All the time series have been retrospectively reclassified to fit the new system of subjects. This avoids breaks in the time series. However, comparisons with the tables in the EFI Reports up until 2017 are now only possible to a limited extent.

<sup>2)</sup> Graduates with first academic degree.

Source: Statistisches Bundesamt (Federal Statistical Office) and research by DZHW-ICE in Gehrke et al. (2020a).

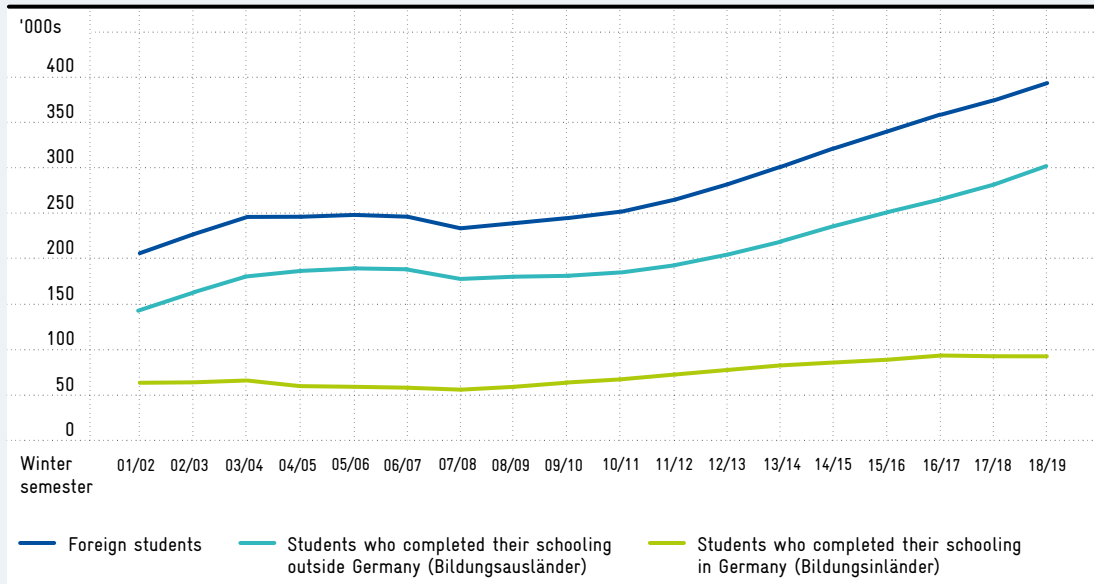
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Fig. C 1-5

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### Foreign students at German tertiary education institutions 2001–2019

Foreign students are defined as persons without German citizenship. They can be divided into students who obtained their higher-education entrance qualification in Germany (Bildungsinländer), and those who obtained this qualification abroad (Bildungsausländer).



Source: Statistisches Bundesamt (Federal Statistical Office) and research by DZHW-ICE in Gehrke et al. (2020a).  
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## Participation of individuals and companies in further training 2008–2018 as percentages

Individual further-education rate: percentage of people who had participated in a further-education measure in the last four weeks prior to the time of the survey. Corporate participation in further training: percentage of companies where employees were released for training or whose training costs were paid.\*

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>a) Individual further-education rate</b>	5.5	5.0	4.9	4.9	5.1	4.9	4.8	4.9	5.2	5.0	4.9
<b>Gainfully employed persons</b>	6.4	5.8	5.6	5.6	5.9	5.6	5.5	5.5	5.8	5.4	5.3
low (ISCED 0-2)	1.7	1.4	1.3	1.0	1.4	1.4	1.3	1.2	1.5	1.5	1.3
medium (ISCED 3-4)	4.4	4.2	3.9	3.9	4.1	3.9	4.2	4.3	4.5	4.2	4.0
high (ISCED 5-8)	12.2	10.6	10.5	10.3	10.6	10.1	9.4	9.3	9.7	8.9	8.9
<b>Unemployed persons</b>	4.9	4.3	3.9	4.6	3.8	3.6	3.7	3.7	4.2	5.3	5.1
low (ISCED 0-2)	2.4	2.7	3.5	3.6	3.1	2.9	2.8	2.6	3.3	5.1	4.9
medium (ISCED 3-4)	5.3	4.0	3.2	4.0	3.6	3.4	3.3	3.4	3.6	4.3	4.2
high (ISCED 5-8)	8.1	8.4	8.3	10.0	6.6	5.4	6.4	6.3	7.2	8.6	7.7
<b>Inactive persons</b>	2.3	1.9	2.0	1.9	1.6	1.8	1.8	2.0	2.4	3.2	2.9
low (ISCED 0-2)	1.4	1.8	1.6	1.5	1.4	1.4	1.3	1.7	2.5	4.0	3.8
medium (ISCED 3-4)	1.8	1.5	1.8	1.9	1.4	1.5	1.6	1.6	1.8	2.2	2.0
high (ISCED 5-8)	5.4	3.4	3.6	2.7	2.8	3.5	3.4	3.7	4.4	4.9	4.2
<b>b) Corporate participation in further training<sup>1)</sup></b>	49.0	44.6	44.1	52.6	53.1	52.1	53.6	52.8	53.2	53.0	-
<b>By sector</b>											
Knowledge-intensive manufacturing	65.1	52.6	55.9	62.9	65.5	66.7	69.9	70.6	64.0	65.0	-
Non-knowledge-intensive manufacturing	37.8	32.5	33.3	41.2	43.2	41.8	43.0	44.5	46.3	45.4	-
Knowledge-intensive services	68.3	58.7	57.1	68.7	67.2	67.4	67.0	67.5	69.2	66.1	-
Non-knowledge-intensive services	39.4	38.0	37.5	44.9	45.3	44.3	46.0	43.8	43.7	45.2	-
Non-commercial economy	53.8	51.9	51.2	59.0	60.3	58.4	61.9	60.1	59.3	59.3	-
<b>By company size</b>											
< 50 employees	46.9	42.5	41.8	50.5	50.9	49.8	51.4	50.5	50.8	50.6	-
50–249 employees	86.7	81.3	83.3	90.8	89.7	90.1	90.8	89.3	89.5	89.0	-
250–499 employees	95.9	92.0	93.3	95.9	96.5	97.0	96.9	96.8	96.4	96.0	-
≥ 500 employees	97.8	96.0	97.9	98.4	97.8	99.1	99.1	97.1	97.9	97.2	-

\* Question in the IAB Establishment Panel: "Were employees released to participate in in-house or external training measures and/or were the costs of training measures paid wholly or in part by the establishment?" For ISCED cf. C 1-1.

Population a): All persons aged between 25 and 64.

Population b): All establishments with at least one employee covered by social security insurance.

<sup>1)</sup> The data for corporate participation in further training in 2018 were not available by the editorial deadline.

Source a): European Labour Force Survey (special evaluation). Calculations by CWS in Gehrke et al. (2020a). Data from 2016 onwards relating to unemployed and inactive persons are only comparable with previous years to a limited extent due to methodological adjustments and stricter confidentiality regulations.

Source b): IAB Establishment Panel (special evaluation). Calculations by CWS in Gehrke et al. (2020a).

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