

# Education and qualification<sup>387</sup>

## C 1

In 2016, 31.2 percent of Germany's working population had tertiary qualifications (ISCED 5+6 and ISCED 7+8); this figure was 0.5 percentage points higher than in the previous year (C 1-1). The percentage of people with low qualifications (ISCED 0-2) in Germany is the second lowest after Finland by international comparison.

The number of new tertiary students as a percentage of the relevant age group (C 1-2) in Germany declined slightly in 2015 for the first time since 2007 and amounted to 63 percent. The proportion of new tertiary students rose markedly from 34 to 64 percent in the period 2007–2014.

In 2016 there were 453,622 qualified school-leavers in Germany (C 1-3). 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, was thus 52.1 percent.

In 2016, the number of first-time graduates (C 1-4) fell slightly compared to the previous year from 317,102 to 315,168. There was also a slight decline in engineering sciences as a percentage of all subject groups. This figure fell from 25.6 percent in 2015 to 24.9 percent in 2016. Please note that, in that year, the subject structure rate was calculated for the first time according to the Federal Statistical Office's new subject-group classification, which, above all, changed the relations between subject groups. In order to maintain comparability over the years, the data entered into the table for the winter semester 2015/16 was converted to the subject-group classification of the previous years.

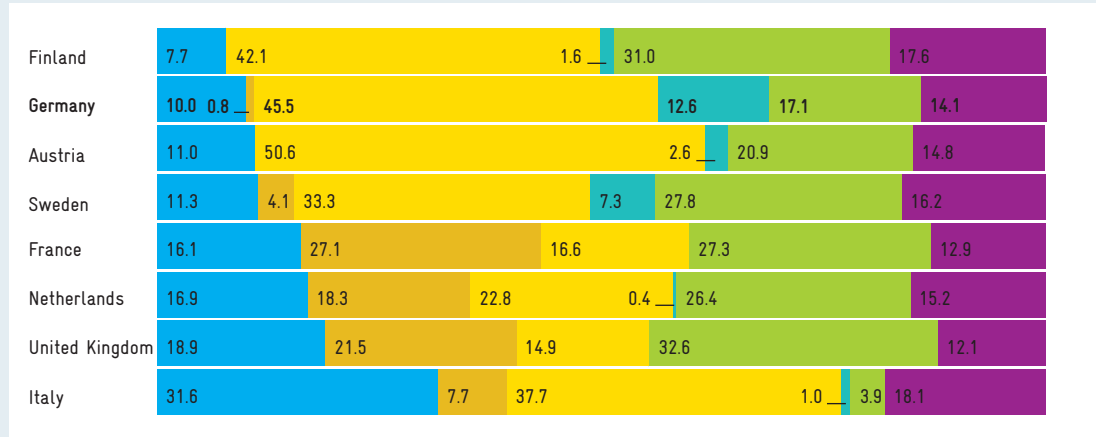
The number of foreign students in Germany (C 1-5) was 356,895 in the winter semester 2015/16. This meant that their number has increased by around 152,754 or 57 percent since the winter semester 2001/02.

The further-education rate (C 1-6) rose to 5.2 percent in 2016, compared to 4.9 percent in 2015. The biggest rise was recorded in the participation of gainfully employed persons in further training with an increase from 5.5 to 5.8 percent.

Fig. C 1-1

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### Qualification levels of gainfully employed persons in selected EU countries in 2016 as percentages



Classification of the ISCED qualification levels<sup>1)</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> 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 and Kerst (2018).

Tab. C 1-2

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

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

OECD countries	2005	2006	2007	2008	2009	2010	2011	2012	2013 <sup>1)</sup>	2014 <sup>1)</sup>	2015 <sup>1)</sup>	2015 *
Germany	36	35	34	36	40	42	46	53	59	64	63	56
France	-	-	-	-	-	-	39	41	-	-	-	-
United Kingdom	51	57	55	57	61	63	64	67	58	61	69	61
Japan	41	45	46	48	49	51	52	52	-	80	80	-
Sweden	76	76	73	65	68	76	72	60	56	62	62	55
South Korea	54	59	61	71	71	71	69	69	-	-	-	-
USA	64	64	65	64	70	74	72	71	52	52	52	50
<b>OECD average</b>	<b>54</b>	<b>56</b>	<b>56</b>	<b>56</b>	<b>59</b>	<b>61</b>	<b>60</b>	<b>58</b>	<b>67</b>	<b>68</b>	-	-
China	-	-	-	-	17	17	19	18	-	-	-	-

<sup>1)</sup> The table shows the university entry rates according to the ISCED classification for levels 5, 6 and 7. Please note: figures from 2013 and later were compiled according to ISCED 2011, figures before 2013 according to ISCED 97; this table is therefore not comparable with previous years. ISCED 2011 used here has nine levels, while ISCED 1997 only had seven. ISCED 2011 distinguishes between four instead of two levels in the field of higher 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.

\* Adjusted rate excluding new international tertiary students.

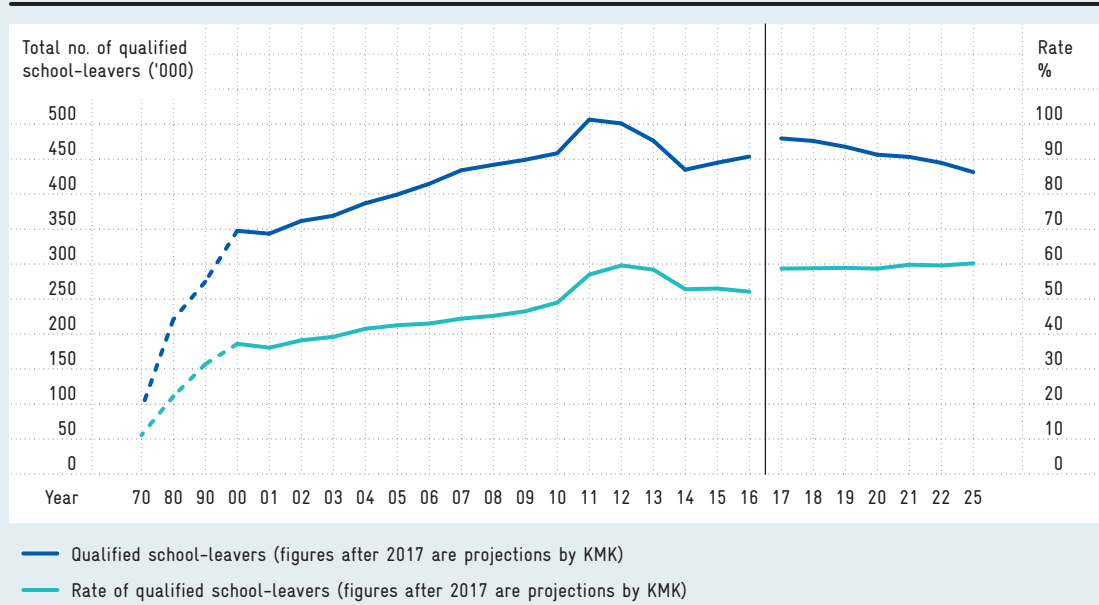
Sources: OECD (ed.): Education at a glance. OECD indicators, various years in Gehrke and Kerst (2018).

Fig. C 1-3

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### School-leavers qualified for higher education in Germany 1970–2025 (figures for 2017 and later are projections)

School-leavers qualified for higher education: either with a 'general' or '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, the actual figures no longer include school leavers who have passed the school part of the 'technical' Abitur but must still do a period of professional practical training according to Länder rules to fully qualify for tertiary education.  
Source of forecast figures: statistical publications of the Standing Conference of Education Ministers (KMK) in Gehrke and Kerst (2018).

Tab. C 1-4

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

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.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Total number of graduates <sup>2)</sup></b>	220,782	239,877	260,498	287,997	294,330	307,271	309,621	309,870	313,796	317,102	315,168
Percentage of women	51.6	51.8	52.2	51.7	52.1	51.4	51.3	51.5	51.2	51.1	52.0
Percentage of graduates from universities	61.9	62.4	62.4	62.0	62.0	62.1	61.3	59.9	59.0	56.8	54.7
<b>Humanities</b>	27,361	30,997	36,458	38,684	38,385	39,435	38,444	38,247	38,788	37,135	34,886
Percentage of subject group	12.4	12.9	14.0	13.4	13.0	12.8	12.4	12.3	12.4	11.7	11.1
<b>Legal, economics and social sciences</b>	91,643	98,668	101,418	116,414	119,289	122,294	122,239	123,171	125,628	128,273	132,737
Percentage of subject group	41.5	41.1	38.9	40.3	40.5	39.8	39.5	39.7	40.0	40.5	42.1
<b>Human medicine</b>	12,230	13,358	14,345	15,142	15,222	15,686	15,856	16,534	17,331	17,935	19,521
Percentage of subject group	5.5	5.6	5.5	5.2	5.2	5.1	5.1	5.3	5.5	5.7	6.2
<b>Agriculture, forestry and food sciences, veterinary medicine</b>	6,227	6,534	7,204	7,729	7,125	7,521	7,345	7,158	7,008	7,442	6,978
Percentage of subject group	2.8	2.7	2.8	2.7	2.4	2.4	2.4	2.3	2.2	2.3	2.2
<b>Art</b>	10,503	10,399	11,185	11,544	11,820	12,525	12,866	12,542	11,913	11,514	11,268
Percentage of subject group	4.8	4.3	4.3	4.0	4.0	4.1	4.2	4.0	3.8	3.6	3.6
<b>Mathematics, natural sciences</b>	20,520	22,986	27,377	30,953	32,800	34,096	32,793	31,665	31,635	30,001	28,081
Percentage of subject group	9.3	9.6	10.5	10.7	11.1	11.1	10.6	10.2	10.1	9.5	8.9
<b>Engineering</b>	49,169	53,496	58,514	64,004	65,621	71,128	75,697	77,049	78,018	81,300	78,552
Percentage of subject group	22.3	22.3	22.5	22.2	22.3	23.1	24.4	24.9	24.9	25.6	24.9

<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 the renaming of study subjects or the merger of Veterinary Medicine with Agricultural, Forestry and Food Sciences, there were two major re-classifications. The subject group Legal, Economic and Social Sciences now also includes Psychology, Education and Special Needs Education, which used to be assigned to the subject group 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 was introduced under Engineering. These two subjects had previously been 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 from the previous EFI Reports are now only possible to a limited extent.

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

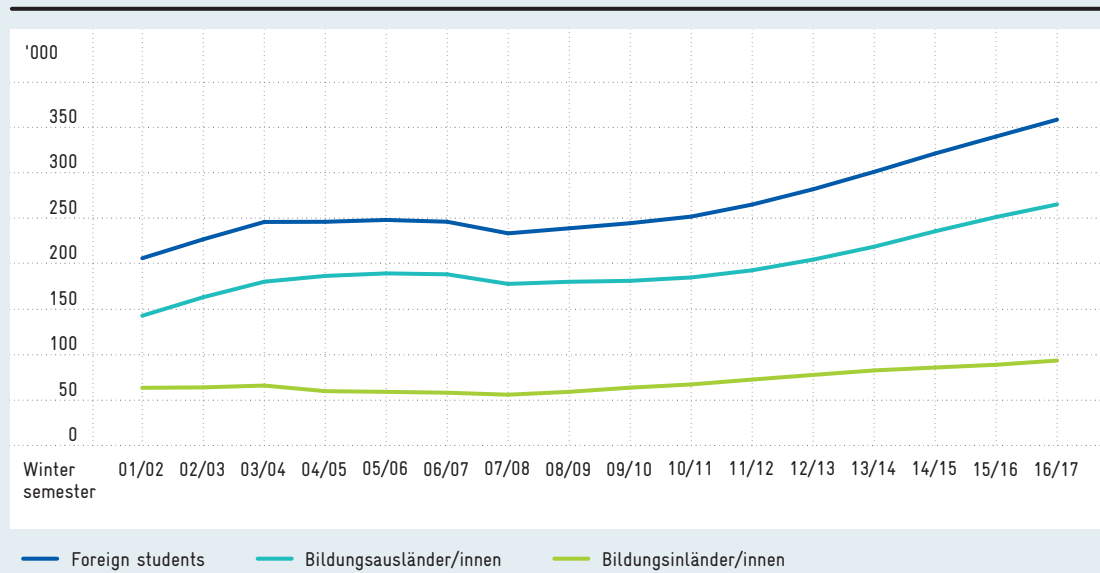
Source: Federal Statistical Office and research by DZHW-ICE, in Gehrke and Kerst (2018).

Fig. C 1-5

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### Foreign students at German tertiary education institutions

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/innen), and those who obtained this qualification abroad (Bildungsausländer/innen).



Source: Federal Statistical Office and research by DZHW-ICE, in Gehrke and Kerst (2018).

Tab. C 1-6

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## Participation of individuals and companies in further training 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.\*

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>a) Individual further-education rate</b>	4.6	4.9	5.5	5.0	4.9	4.9	5.1	4.9	4.8	4.9	5.2
<b>Gainfully employed persons</b>	5.7	5.9	6.4	5.8	5.6	5.6	5.9	5.6	5.5	5.5	5.8
low (ISCED 0-2)	1.3	1.5	1.7	1.4	1.3	1.0	1.4	1.4	1.3	1.2	1.5
medium (ISCED 3-4)	4.0	4.1	4.4	4.2	3.9	3.9	4.1	3.9	4.2	4.3	4.5
high (ISCED 5-8)	11.2	11.4	12.2	10.6	10.5	10.3	10.6	10.1	9.4	9.3	9.7
<b>Unemployed persons</b>	2.8	3.1	4.9	4.3	3.9	4.6	3.8	3.6	3.7	3.7	3.4
low (ISCED 0-2)	1.1	2.5	2.4	2.7	3.5	3.6	3.1	2.9	2.8	2.6	2.0
medium (ISCED 3-4)	3.0	2.9	5.3	4.0	3.2	4.0	3.6	3.4	3.3	3.4	3.9
high (ISCED 5-8)	5.6	5.4	8.1	8.4	8.3	10.0	6.6	5.4	6.4	6.3	6.1
<b>Inactive persons</b>	1.6	1.7	2.3	1.9	2.0	1.9	1.6	1.8	1.8	2.0	2.2
low (ISCED 0-2)	0.9	0.8	1.4	1.8	1.6	1.5	1.4	1.4	1.3	1.7	2.3
medium (ISCED 3-4)	1.3	1.7	1.8	1.5	1.8	1.9	1.4	1.5	1.6	1.6	2.1
high (ISCED 5-8)	4.2	3.5	5.4	3.4	3.6	2.7	2.8	3.5	3.4	3.7	3.5
<b>b) Corporate participation in further training</b>	-	45.5	49.0	44.6	44.1	52.6	53.1	52.1	53.6	52.8	-
<b>By sector</b>											
Knowledge-intensive manufacturing	-	65.3	65.1	52.6	55.9	62.9	65.5	66.7	69.9	70.6	-
Non-knowledge-intensive manufacturing	-	33.2	37.8	32.5	33.3	41.2	43.2	41.8	43.0	44.5	-
Knowledge-intensive services	-	63.2	68.3	58.7	57.1	68.7	67.2	67.4	67.0	67.5	-
Non-knowledge-intensive services	-	37.3	39.4	38.0	37.5	44.9	45.3	44.3	46.0	43.8	-
Non-commercial economy	-	49.9	53.8	51.9	51.2	59.0	60.3	58.4	61.9	60.1	-
<b>By company size</b>											
< 50 employees	-	43.2	46.9	42.5	41.8	50.5	50.9	49.8	51.4	50.5	-
50 – 249 employees	-	85.1	86.7	81.3	83.3	90.8	89.7	90.1	90.8	89.3	-
250 – 499 employees	-	95.2	95.9	92.0	93.3	95.9	96.5	97.0	96.9	96.8	-
≥ 500 employees	-	95.3	97.8	96.0	97.9	98.4	97.8	99.1	99.1	97.1	-

All figures are provisional. Cf. C 1-1 for information on ISCED.

Population a): All persons aged between 15 and 64.

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

\* 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?"

Source a): European Labour Force Survey (special evaluation). Calculations by CWS in Gehrke and Kerst (2018).

Source b): IAB Establishment Panel (special evaluation). Calculations by CWS in Gehrke and Kerst (2018).