

Education and qualification

C 1

The percentage of the working population in Germany with tertiary qualifications (ISCED 5+6 and ISCED 7+8) was 30.7 percent in 2015, 0.6 percentage points higher than in the previous year (C 1-1). The percentage of people with low qualifications (ISCED 0-2) also rose slightly compared to the previous year from 9.6 to 9.8 percent. Of all the countries compared, Italy had by far the highest proportion of low-skilled employees. They made up 31.7 percent of all employed people.

The number of new tertiary students as a percentage of the relevant age group (C 1-2) rose sharply again in Germany. The figure grew by 5 percentage points to 64 percent between 2013 and 2014. It was thus 4 percentage points below the OECD average of 68 percent.

In 2015 there were 444,859 school-leavers in Germany qualified for higher education (C 1-3). The rate of qualified school-leavers, i.e. the number of school-leavers qualified for tertiary education as a percentage of the relevant age group, was thus 53 percent. Two years earlier in 2013, the rate of qualified school-leavers was 57.8 percent, almost 5 percentage points higher. The rate of qualified school-leavers for 2016 is expected to have risen again significantly.

The number of first-time graduates (C 1-4) increased again to 317,102 in 2015. At the same time, the percentage of first-time graduates who completed their degrees at a university amounted to 56.8 percent in 2015, having fallen again relative to those who graduated at universities of applied science (UAS). The number of first-time graduates in engineering (among others) showed marked growth. Their number increased from 62,606 in 2014 to 64,984 in 2015; as a percentage of all graduates, the figure rose from 16.5 percent in 2005 to 20.5 percent.

There was a further increase in the number of foreign students in Germany (C 1-5). In the 2015/16 winter semester, 251,542 Bildungsausländer – i.e. students who obtained their university entrance qualification abroad – were enrolled at German tertiary education institutions. Their number was 15,684 up on the previous year, and had risen by 62,092 compared to the winter semester of 2005/06.

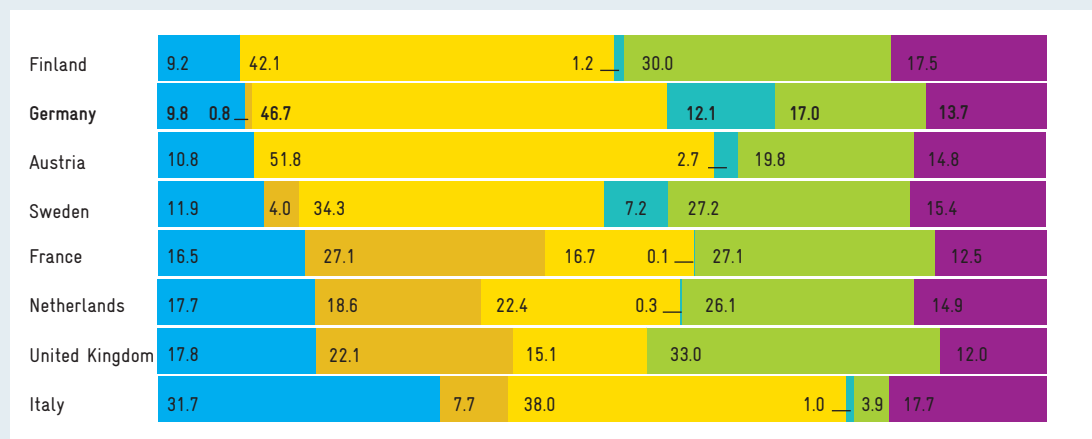
The number of Bildungsinländer, i.e. foreign students who obtained their university entrance qualification in Germany, rose to 88,763 in the 2015/16 winter semester. Their number has risen by 29,856 since the 2005/2006 winter semester.

Participation by firms in further education (C 1-6) rose across all sectors and all size categories between 2005 and 2014. The corporate further-education rate rose from 42.7 percent in 2005 to 53.6 percent in 2014 – an increase of almost 11 percentage points. Participation in further education increased particularly strongly among small companies with fewer than 50 employees. This figure rose from 40.5 percent in 2005 to 51.4 percent in 2014.⁴⁴⁹

Fig. C 1-1

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Qualification levels of gainfully employed persons in selected EU countries, 2015 (as percentage)



Classification of the ISCED qualification levels*.

- 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: Technical college / university and completion of an 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, PhD or equivalent qualification

* 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. (2017a).

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	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ¹⁾	2014	2014*
France	-	-	-	-	-	-	-	39	41	-	-	-
Germany	37	36	35	34	36	40	42	46	53	59	64	57
Japan	40	41	45	46	48	49	51	52	52	-	80	-
South Korea	49	54	59	61	71	71	71	69	69	-	-	-
Sweden	79	76	76	73	65	68	76	72	60	56	62	56
Switzerland	38	37	38	39	38	41	44	44	44	76	80	45
United Kingdom	52	51	57	55	57	61	63	64	67	58	61	54
USA	63	64	64	65	64	70	74	72	71	52	52	51
OECD average	53	54	56	56	56	59	61	60	58	67	68	61
China	-	-	-	-	-	17	17	19	18	-	-	-

¹⁾ The table shows the university entry rates according to the ISCED classification for levels 5, 6 and 7.

Please note: figures from 2013 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 had only seven.

ISCED 2011 has four instead of two levels in the field of higher education (ISCED 1997: Levels 5A and 6; ISCED 2011: Levels 5 to 8); in addition, it 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. Cf. Fig C 1-1 on the classification of the ISCED qualification levels.

* Adjusted rate excluding international students beginning tertiary education.

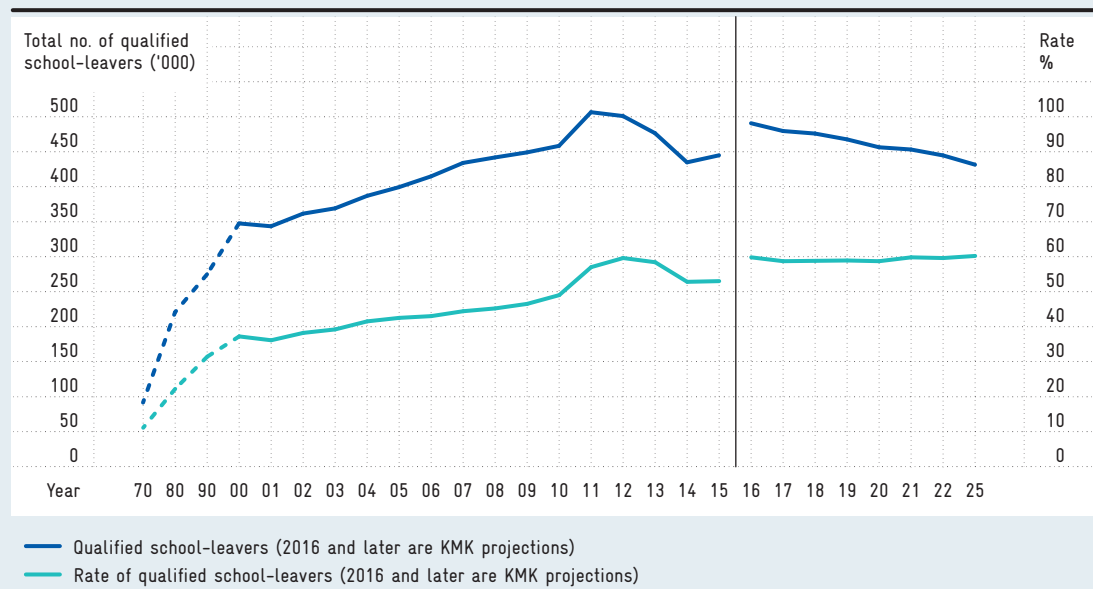
Sources: OECD (ed.): Education at a Glance. OECD indicators, various years in Gehrke et al. (2017a).

Fig. C 1-3

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School-leavers qualified for higher education in Germany, 1970 to 2025 (figures for 2016 and later are projections)

School-leavers qualified for higher education have either 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.



Source for actual values: Federal Statistical Office (2016), in Gehrke et al. (2017a).

Source for projections: Statistical Publications of the Standing Conference of Education Ministers in: Gehrke et al. (2017a).

* Since 2013, the actual figures no longer include school-leavers who have passed the academic part of the 'technical' Abitur but must still do a period of professional practical training according to the respective Länder rules to fully qualify for tertiary education.

Tab. C 1-4

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Number of first-time graduates and subject-structure rates

First-time graduates and subjects structure rates: the subject structure rate indicates the percentage of first-time graduates in a specific subject or subject group. First-time graduates are persons who successfully complete a first degree.

	2005	2007	2009	2010	2011	2012	2013	2014	2015
Total number of graduates	207,936	239,877	287,997	294,330	307,271	309,621	309,870	313,796	317,102
Percentage of women	50.8	51.8	51.7	52.1	51.4	51.3	51.5	51.1	51.1
Percentage of university graduates	60.8	62.4	62.0	62.0	62.1	61.3	59.9	59.0	56.8
Linguistic and cultural sciences	35,732	43,827	53,003	54,808	56,140	55,659	56,313	57,016	55,596
Percentage for subject group	17.2	18.3	18.4	18.6	18.3	18.0	18.2	18.2	17.5
Law, economics and social sciences	76,566	85,838	101,391	102,315	105,589	105,024	105,105	106,710	109,122
Percentage for subject group	36.8	35.8	35.2	34.9	34.4	33.9	33.9	34.0	34.4
Medicine/health sciences	11,817	13,358	15,142	15,222	15,686	15,856	16,534	17,331	17,935
Percentage for subject group	5.7	5.6	5.3	5.2	5.1	5.1	5.3	5.5	5.7
Agriculture, forestry, nutrition sciences	5,312	5,661	6,787	6,215	6,563	6,405	6,193	6,042	6,484
Percentage for subject group	2.6	2.4	2.3	2.1	2.1	2.1	2.0	1.9	2.0
Art, art history	9,678	10,399	11,541	11,820	12,525	12,866	12,542	11,913	11,514
Percentage for subject group	4.7	4.3	4.0	4.0	4.1	4.2	4.0	3.8	3.6
Mathematics, natural sciences	30,737	38,417	47,782	48,561	49,593	48,231	46,707	47,046	46,317
Percentage for subject group	14.8	16.0	16.6	16.5	16.1	15.6	15.1	15.0	14.6
Engineering sciences	34,339	38,065	47,004	49,860	55,631	60,259	62,007	62,606	64,984
Percentage for subject group	16.5	15.9	16.3	16.9	18.1	19.5	20.0	20.0	20.5

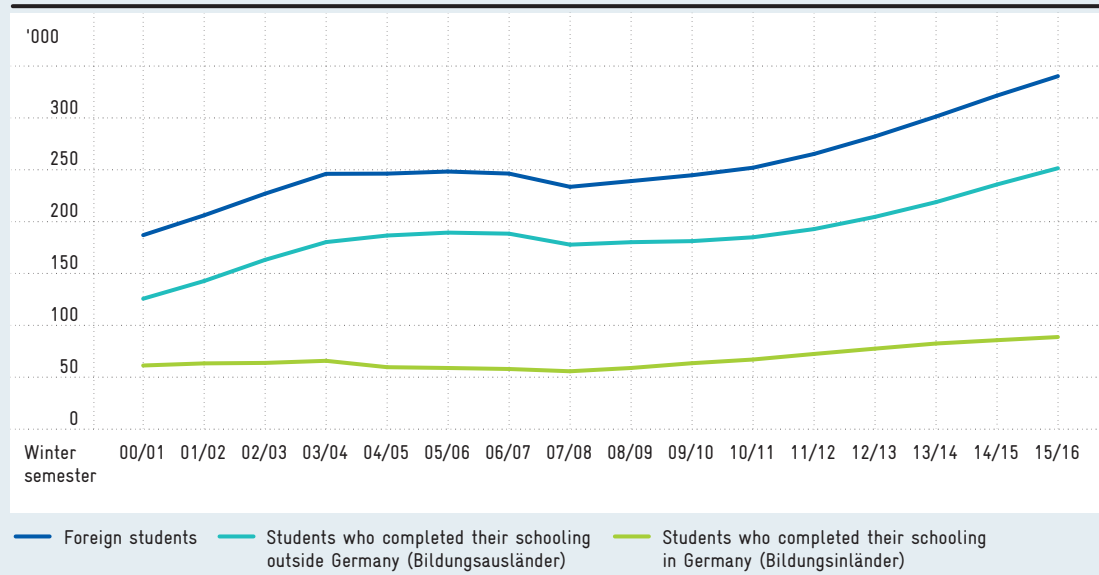
Source: Federal Statistical Office and research in DZHW-ICE, in Gehrke et al. (2017a).

Fig. C 1-5

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Foreign students at German tertiary education institutions

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



Source: Federal Statistical Office and research in DZHW-ICE, in Gehrke et al. (2017a).

Tab. C 1-6

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Percentage participation of individuals and companies in further training

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

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
a) Individual further-education rate	5.2	4.6	4.9	5.5	5.0	4.9	4.9	5.1	4.9	4.8	4.9
Gainfully employed persons	6.4	5.7	5.9	6.4	5.8	5.6	5.6	5.9	5.6	5.5	5.5
low (ISCED 0-2)	1.6	1.3	1.5	1.7	1.4	1.3	1.0	1.4	1.4	1.3	1.2
medium (ISCED 3-4)	4.5	4.0	4.1	4.4	4.2	3.9	3.9	4.1	3.9	4.2	4.3
high (ISCED 5-8)	12.1	11.2	11.4	12.2	10.6	10.5	10.3	10.6	10.1	9.4	9.3
Unemployed persons	3.1	2.8	3.1	4.9	4.3	3.9	4.6	3.8	3.6	3.7	3.7
low (ISCED 0-2)	2.0	1.1	2.5	2.4	2.7	3.5	3.6	3.1	2.9	2.8	2.6
medium (ISCED 3-4)	2.8	3.0	2.9	5.3	4.0	3.2	4.0	3.6	3.4	3.3	3.4
high (ISCED 5-8)	6.1	5.6	5.4	8.1	8.4	8.3	10.0	6.6	5.4	6.4	6.3
Inactive persons	2.0	1.6	1.7	2.3	1.9	2.0	1.9	1.6	1.8	1.8	2.0
low (ISCED 0-2)	0.9	0.9	0.8	1.4	1.8	1.6	1.5	1.4	1.4	1.3	1.7
medium (ISCED 3-4)	2.0	1.3	1.7	1.8	1.5	1.8	1.9	1.4	1.5	1.6	1.6
high (ISCED 5-8)	4.2	4.2	3.5	5.4	3.4	3.6	2.7	2.8	3.5	3.4	3.7
b) Corporate participation in further training	42.7	-	45.5	49.0	44.6	44.1	52.6	53.1	52.1	53.6	-
By sector											
Knowledge-intensive manufacturing	55.7	-	65.3	65.1	52.6	55.9	62.9	65.5	66.7	69.9	-
Non-knowledge-intensive manufacturing	32.4	-	33.2	37.8	32.5	33.3	41.2	43.2	41.8	43.0	-
Knowledge-intensive services	58.8	-	63.2	68.3	58.7	57.1	68.7	67.2	67.4	67.0	-
Non-knowledge-intensive services	34.9	-	37.3	39.4	38.0	37.5	44.9	45.3	44.3	46.0	-
Non-commercial economy	46.9	-	49.9	53.8	51.9	51.2	59.0	60.3	58.4	61.9	-
By company size											
< 50 employees	40.5	-	43.2	46.9	42.5	41.8	50.5	50.9	49.8	51.4	-
50 – 249 employees	62.9	-	65.1	66.7	61.3	63.3	90.8	89.7	90.1	90.8	-
250 – 499 employees	95.6	-	95.2	95.9	92.0	93.3	95.9	96.5	97.0	96.9	-
≥ 500 employees	97.0	-	95.3	97.8	96.0	97.9	98.4	97.8	99.1	99.1	-

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 subject to social insurance contributions.

Source a): European Labour Force Survey (special evaluation). Calculations by ZEW in Gehrke et al. (2017a).

Source b): IAB Establishment Panel (special evaluation). Calculations by ZEW in Gehrke et al. (2017a).

* 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?"