

Education and qualification

C 1

The comparative international data on education and training presented in this chapter are based for the first time on the ISCED 2011 classification, newly introduced by the OECD. As a result, the latest values of the indicators – i.e. C 1-1 Qualification levels of gainfully employed persons in selected EU countries, C 1-2 Number of new tertiary students as a percentage of the relevant age group in selected OECD countries, and C 1-6a Percentage participation of individuals and companies in further training – differ, in some cases significantly, from the figures of past years.

Up until last year, the indicators mentioned were based on the ISCED 1997 classification. The differences between the ISCED 1997 and ISCED 2011 classifications stem primarily from the introduction of additional qualification levels. While ISCED 1997 used seven levels to classify levels of qualification, ISCED 2011 uses nine. For example, in the field of higher education ISCED 2011 distinguishes between four instead of two levels (ISCED 1997: Levels 5A and 6; ISCED 2011: Levels 5 to 8), and in the field of secondary education ISCED 2011 additionally distinguishes between ‘general and vocational upper secondary education without direct access to tertiary education (ISCED 3*)’ and ‘general and vocational upper secondary education with direct access to tertiary education (ISCED 3**)’.

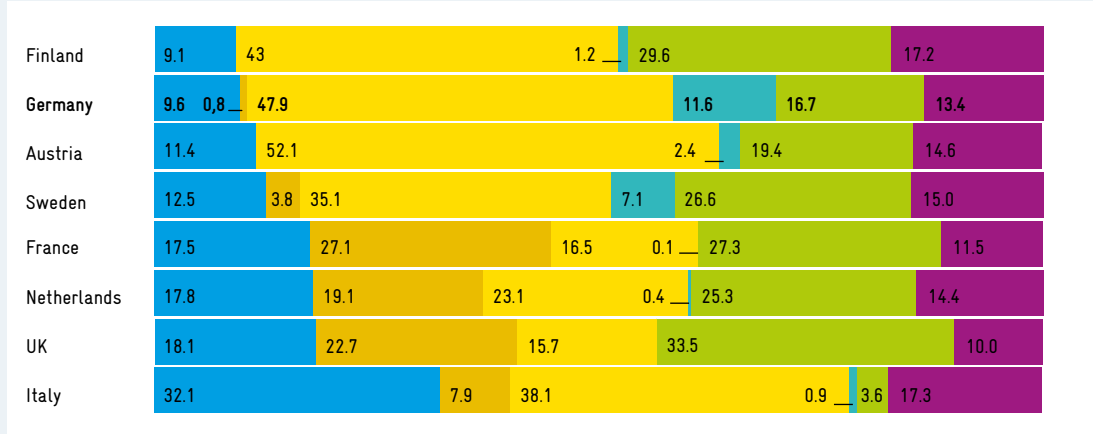
The breaks resulting from the use of the new ISCED 2011 classification reveal national peculiarities, which can be traced back partly to peculiarities of the educational systems and partly to resultant reclassifications of qualifications, so that it is almost impossible to compare results in different countries and from different time periods. In Germany, for example, the introduction of the ISCED 2011 classification led to a shift in the assignment of the schools of the healthcare system. In the past these belonged to ISCED 5B. In the national implementation of the ISCED 2011 classification, the two- and three-year programmes at schools of the healthcare system now belong to ISCED 4 (post-secondary non-tertiary education). The consequence of this is that, even if the ISCED 5A and 5B levels according to the old ISCED 1997 classification are considered together, and compared with the combined levels 5, 6 and 7 of the ISCED 2011 classification, the figures are not compatible and therefore not comparable.³⁵⁰

This example shows how important it is to follow definitions and methods precisely when collecting international comparative data. Even small changes in the classification can have a massive influence on a country’s performance in international hit lists and rankings and lead the reader to false conclusions. Therefore, before conclusions relevant to education policy are drawn on the basis of country comparisons, the definitions and delimitations of the indicators in the reference countries should be examined very carefully.

Fig. C 1-1

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Qualification levels of gainfully employed persons in selected EU countries, 2014 (figures in percent)



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: Post-secondary non-tertiary education, (technical) higher education entrance qualification with apprenticeship.
- ISCED 5+6: Short, job-related tertiary education (2 to less than 3 years), bachelor's degree, training as a master craftsman or technician or equivalent qualification.
- ISCED 7+8: Master's degree, PhD or equivalent qualification

Note: figures for 2014 were compiled according to ISCED 2011, figures before 2014 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. Cf. p. 97.

* 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 NIW. In: Cordes and Kerst (2016).

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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ¹⁾	2013*
Germany	36	37	36	35	34	36	40	42	46	53	59	53
France	39	-	-	-	-	-	-	-	39	41	-	-
Japan	40	40	41	45	46	48	49	51	52	52	-	-
Sweden	80	79	76	76	73	65	68	76	72	60	56	51
Switzerland	38	38	37	38	39	38	41	44	44	44	76	-
South Korea	47	49	54	59	61	71	71	71	69	69	-	-
United Kingdom	48	52	51	57	55	57	61	63	64	67	58	51
USA	63	63	64	64	65	64	70	74	72	71	52	51
OECD average	53	53	54	56	56	56	59	61	60	58	67	60
China	-	-	-	-	-	-	17	17	19	18	-	-

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

Note: figures for 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 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. Cf. p. 97.

* Adjusted rate excluding new international tertiary students.

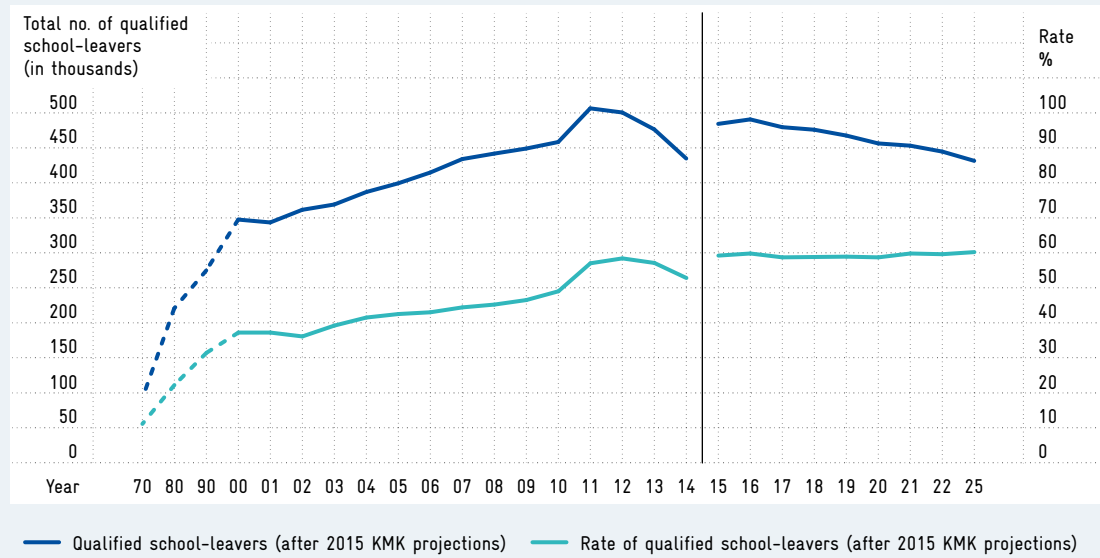
Sources: OECD (ed.): Education at a glance. OECD indicators, various years. In: Cordes and Kerst (2016).

Fig. C 1-3

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School-leavers qualified for higher education in Germany, 1970 to 2025 (figures after 2015 are projections)

School-leavers qualified for higher education: either with a 'general' or 'technical' school-leaving certificate*
(in Germany Abitur).



Source of actual figures: Statistisches Bundesamt (Federal Statistical Office) (2015). In: Cordes and Kerst (2016).

Source of forecast figures: Statistical Publications of the Standing Conference of Education Ministers. In: Cordes and Kerst (2016).

* 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

Tab. C 1-4

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Number of first-time graduates and subjects structure rates

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

	2000	2005	2007	2009	2010	2011	2012	2013	2014
Total number of graduates	176,654	207,936	239,877	287,997	294,330	307,271	309,621	309,870	313,796
Percentage of women	45.6	50.8	51.8	51.7	52.1	51.4	51.3	51.5	51.1
Percentage of university graduates	64.3	60.8	62.4	62.0	62.0	62.1	61.3	59.9	59.0
Linguistic and cultural sciences	29,911	35,732	43,827	53,003	54,808	56,140	55,659	56,313	57,016
Percentage for subject group	16.9	17.2	18.3	18.4	18.6	18.3	18.0	18.2	18.2
Law, business and social sciences	62,732	76,566	85,838	101,391	102,315	105,589	105,024	105,105	107,400
Percentage for subject group	35.5	36.8	35.8	35.2	34.9	34.4	33.9	33.9	34.2
Human medicine/ healthcare sciences	10,620	11,817	13,358	15,142	15,222	15,686	15,856	16,534	17,331
Percentage for subject group	6.0	5.7	5.6	5.3	5.2	5.1	5.1	5.3	5.5
Agriculture, forestry, nutrition sciences	4,761	5,312	5,661	6,787	6,215	6,563	6,405	6,193	6,042
Percentage for subject group	2.7	2.6	2.4	2.3	2.1	2.1	2.1	2.0	1.9
Art and art-related subjects	7,630	9,678	10,399	11,541	11,820	12,525	12,866	12,542	11,913
Percentage for subject group	4.3	4.7	4.3	4.0	4.0	4.1	4.2	4.0	3.8
Mathematics, natural sciences	21,844	30,737	38,417	47,782	48,561	49,593	48,231	46,707	47,046
Percentage for subject group	12.4	14.8	16.0	16.6	16.5	16.1	15.6	15.1	15.0
Engineering sciences	35,725	34,339	38,065	47,004	49,860	55,631	60,259	62,007	62,607
Percentage for subject group	20.2	16.5	15.9	16.3	16.9	18.1	19.5	20.0	20.0

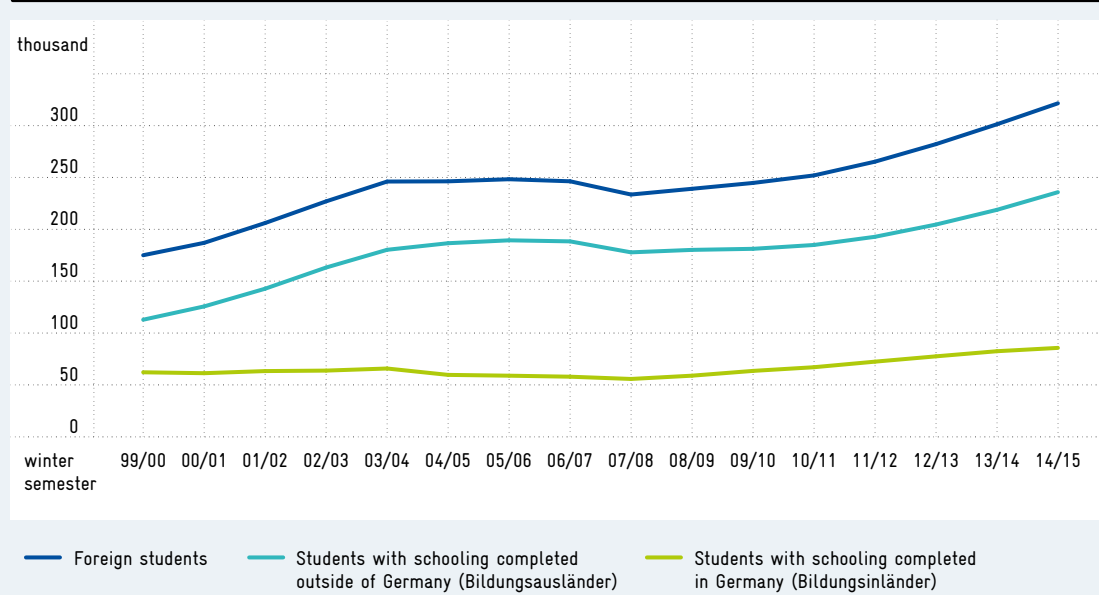
Source: Statistisches Bundesamt (Federal Statistical Office) and research in DZHW-ICE. In: Cordes and Kerst (2016).

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: Statistisches Bundesamt (Federal Statistical Office) and research in DZHW-ICE. In: Cordes and Kerst (2016).

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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 within 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
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
Gainfully employed persons	6.4	5.7	5.9	6.4	5.8	5.6	5.6	5.9	5.6	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
medium (ISCED 3-4)	4.5	4.0	4.1	4.4	4.2	3.9	3.9	4.1	3.9	4.2
high (ISCED 5-8)	12.1	11.2	11.4	12.2	10.6	10.5	10.3	10.6	10.1	9.4
Unemployed persons	3.1	2.8	3.1	4.9	4.3	3.9	4.6	3.8	3.6	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
medium (ISCED 3-4)	2.8	3.0	2.9	5.3	4.0	3.2	4.0	3.6	3.4	3.3
high (ISCED 5-8)	6.1	5.6	5.4	8.1	8.4	8.3	10.0	6.6	5.4	6.4
Inactive persons	2.0	1.6	1.7	2.3	1.9	2.0	1.9	1.6	1.8	1.8
low (ISCED 0-2)	0.9	0.9	0.8	1.4	1.8	1.6	1.5	1.4	1.4	1.3
medium (ISCED 3-4)	2.0	1.3	1.7	1.8	1.5	1.8	1.9	1.4	1.5	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
b) Corporate participation in further training	42.7	-	45.5	49.0	44.6	44.1	52.6	53.1	52.1	-
By sector										
Knowledge-intensive manufacturing	55.7	-	65.3	65.1	52.6	55.9	62.9	65.5	66.7	-
Non-knowledge-intensive manufacturing	32.4	-	33.2	37.8	32.5	33.3	41.2	43.2	41.8	-
Knowledge-intensive services	58.8	-	63.2	68.3	58.7	57.1	68.7	67.2	67.4	-
Non-knowledgeintensive services	34.9	-	37.3	39.4	38.0	37.5	44.9	45.3	44.3	-
Non-industrial economy	46.9	-	49.9	53.8	51.9	51.2	59.0	60.3	58.4	-
By company size										
< 50 employees	40.5	-	43.2	46.9	42.5	41.8	50.5	50.9	49.8	-
50 – 249 employees	82.9	-	85.1	86.7	81.3	83.3	90.8	89.7	90.1	-
250 – 499 employees	95.6	-	95.2	95.9	92.0	93.3	95.9	96.5	97.0	-
≥ 500 employees	97.0	-	95.3	97.8	96.0	97.9	98.4	97.8	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 covered by social security.

Source a): European Labour Force Survey (special evaluation). Calculations by NIW. In: Cordes and Kerst (2016).

Source b): IAB Establishment Panel (special evaluation). Calculations by NIW. In: Cordes and Kerst (2016).

* 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?"