NEPS
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Research Data

Sven Pelz

NEPS Technical Report: Implementation of the ISCED-97/-2011, CASMIN and Years of Education Classification Schemes in SUF Starting Cohort 4

valid as of release 16.0.0

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Bamberg; December 18, 2025

NEPS Technical Report: Implementation of the ISCED-97/-2011, CASMIN and Years of Education Classification Schemes in SUF Starting Cohort 4

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[1] For his contribution to earlier versions, we also thank our former colleague Markus Nester at the RDC.

1 Introduction

Bearing in mind the variety of utilized questions and possible answers on (un)completed school and vocational episodes, four main educational classification schemes were used to harmonize given responses and to facilitate standard analyses: Firstly, the International Standard Classification of Education in its versions of 1997 (ISCED-97)[1][2] and 2011 (ISCED-2011)[3][4], secondly, the Comparative Analysis of Social Mobility in Industrial Nations (CASMIN)[5][6] and, thirdly, the Years of Education. Each classification scheme was generated for the target persons of Starting Cohort 4 and also for their partners, interviewed parental units plus respective partners, (primary/secondary) mothers/fathers, children, and siblings (responses from parental units and target persons). Since the implementation process partly varies for the considered subjects, not only regarding the data and variables used but also regarding the procedure and data structure, a comprehensive overview as well as a step-by-step description of the derivation processes is presented here.

2 ISCED-97 classification

2.1 ISCED-97 classification for the target persons (tx28103)

2.1.1 Data sources and general integration process for the Education file

To obtain the ISCED-97 (and later on the ISCED-2011, CASMIN and Years of Education) scale scores of the targets, educational information from five different data sources had to be integrated:

- spSchool, which holds the general school history (variables used: ts11204, ts11209);
- spVocTrain, which collects the vocational training[2] episode data (variables used: ts15201, ts15218, ts15219, ts15291_g10, ts15591_g10, ts1511m, ts1511y, ts1512m, ts1512y);
- spVocPrep, which provides information on training programs institutionalized as a bridge between school and vocational training (variables used: ts13201, ts1311m, ts1311y, ts1312m, ts1312y);
- spSchoolExtExam, which keeps information on additionally achieved, external exam school certificates (variables used: ts11302, ts1130m, ts1130y, wave, exam);
- and spVocExtExam, which holds the same kind of information for vocational trainings (variables used: ts15304, ts15301_g10, ts1530m, ts1530y, wave, exam).

For the construction of a temporal order of educational transitions in a most reasonable way, the genuine spell-files data (from spSchool, spVocTrain and spVocPrep) were merged via ID_t and splink to an already smoothed Biography[3] file. Only the spells containing a correspondent in the Biography file were kept. Subsequently, data from spSchoolExtExam and spVocExtExam were appended to the

[2] This also includes university degrees etc.

[3] This file contains a harmonized spell-structure of all surveyed life course aspects, like school, (vocational) training, employment, parenthood etc. and indicators (sptype/splink) for the origin of the data.

prior and the resulting data matrix was sorted by the end date[4] of the respective episodes or events.[5] This data structure served as a frame for the resulting Education data set. The further derivation process was divided into four main sub-steps:

- At first, the generation of two auxiliary variables to capture general schooling and vocational qualification in an already ISCED-97 (ISCED-2011, CASMIN) specific categorization;
- These auxiliary variables were carried forward in time within the individual biography to fill the missing information in one of the two[6];
- The resulting data structure was checked for consistency and spells with "falling" schooling degrees[7] were overwritten with the prior higher school degree information.
- All of this was necessary for the last step, the line-by-line combination of the highest school-leaving and last vocational qualifications to derive the final ISCED-97 (ISCED-2011, CASMIN) scale scores in the correct temporal order.

2.1.2 Detailed variable combinations for the ISCED-97 scale scores in the Education file

On a variable level, ISCED-97 was built on the following combinations of categories: Beginning with the variable for the highest school-leaving qualification, target persons with a residual value (ts11209 = -98, -97, -95, -55; ts11302 = -98, -97) or another type of school-leaving qualification (ts11209 = 7; ts11302 = 7) were initially treated as not determinable ("-55"). Concerning terminable statements, respondents with no school-leaving qualification (ts11209 = -21, -20; ts11302 = -21, -20), one from a special needs school (ts11209 = 6; ts11209 = -98, -97, -95, -55, 7 & ts11204 = 12; ts11302 = 6)[8] or an elementary school type (ts11209 = ., -98, -97, -95, -55, 7 & ts11204 = 1, 2) were classified into ISCED-97 "0A/1A". Interviewees with a basic or qualifying school-leaving qualification (ts11209 = 1, 2; ts11209 = -98, -97, -95, -55, 7 & ts11204 = 3, 4; ts11302 = 1, 2) or with a successfully completed pre-vocational training course, measurement or year (sptype = 23) were categorized into "2B", those with an intermediate secondary school-leaving qualification (ts11209 = 3; ts11209 = -98, -97, -95, -55, 7 & ts11204 = 5; ts11302 = 3) into "2A" and those with an entrance certificate for a university of

[4] Either provided by endm, endy in Biography, by ts1130m, ts1130y in spSchoolExtExam or by ts1530m, ts1530y in spVocExtExam.

[5] Furthermore, only harmonized data from subspells with an index "0" and completed spVocPrep (ts13201 ≠ 1), with a duration of at least one year (measured via ts1311m, ts1311y, ts1312m, ts1312y) and spVocTrain spells (ts15218 ≠ ., -98, -97, 2) were used for construction.

[6] The degrees were mostly reached at different points in time and hence were represented in separate lines of the data matrix for each target person.

[7] This implausible educational history mainly results from the incorrectly reported school-spell information, especially regarding ending dates or exam dates of episodes.

[8] Generally speaking, if the residual category was reported for the certificate information (e.g. ts11209 = 7), but an informative type or similar information was given elsewhere (like ts11204 = 3), the most likely respective certificate of this track or program type was assumed.

applied sciences or university (ts11209 = 4, 5; ts11209 = -98, -97, -95, -55, 7 & ts11204 = 8, 9, 15; ts11302 = 4, 5) into "3A". Remaining cases were treated as system-missing.

For the variable to capture the last vocational degree, targets with another, not specified type of vocational qualification (ts15219 = 28, 29; ts15304 = 28, 29), a Bachelor's/Master's degree not awarded by a university of applied sciences or a university (ts15219 = 7, 8, 9, 13, 15 & ts15201 ≠ 9, 10), a residual value (ts15219 = -98, -97, -96, -95, -55; ts15304 = -98, -97, -55), or an invalid response concerning a successfully completed vocational qualification (ts15218 = -98, -97) were initially treated as not determinable ("-55") and remaining cases as system-missing. Then respondents with no vocational degree (ts15218 = 2; ts15219 = -20; ts15304 = -20) or vocational courses as a further vocational qualification (ts15219 = 27; ts15219 = -98, -97, -96, -95, -55, 7, 8, 9, 13, 15, 28, 29 & ts15201 = 13, 14; sptype = 24 & ts15291_g10 = "K …"; sptype = 24 & ts15591_g10 = "K …"; ts15304 = 27; sptype = 40 & ts15301_g10 = "K …") were coded to "0" (= "no degree"). Targets with a journeyperson's or an assistant's certificate (ts15219 = 1; ts15219 = -98, -97, -96, -95, -55, 7, 8, 9, 13, 15, 28, 29 & ts15201 = 1; ts15304 = 1), a certified professional specialist certificate (ts15219 = 32; ts15304 = 32), an examination by the Chamber of Industry and Commerce (ts15219 = 27 & ts15291_g10 = -104, -103, -102,-101, "B …"; ts15219 = 27 & ts15591_g10 = -104, -103, -102,-101, "B …"; ts15304 = 27 & ts15301_g10 = -104, -103, -102,-101, "B …") or one for an ordinary rank within the civil service (ts15219 = 23, ts15304 = 23) were classified into "3B". The same applies for a vocational qualification from a "Berufsfachschule" or "Fachschule" for health care professions with a duration of less than 24 months (ts15219 = 2, 3 & duration[9] < 24; ts15219 = -98, -97, -96, -95, -55, 7, 8, 9, 13, 15, 28, 29 & ts15201 = 2, 3 & duration < 24; ts15304 = 3) or with a missing value in "duration" (ts15219 = 2, 3 & duration = .; ts15219 = -98, -97, -96, -95, -55, 7, 8, 9, 13, 15, 28, 29 & ts15201 = 2, 3 & duration = .). A vocational degree for a middle rank within the civil service (ts15219 = 24; ts15304 = 24) was categorized into "3C". "5B" was assigned to respondents with a certificate as Master or Technician, Bachelor or Master Professional, from a "Fachschule", college of public administration or for a higher rank within the civil service (ts15219 = 4, 5, 6, 25, 30, 31; ts15219 = -98, -97, -96, -95, -55, 7, 8, 9, 13, 15, 28, 29 & ts15201 = 4, 5, 6, 7, 8; ts15219 = 16 & ts15201 = 6, 7, 8; ts15304 = 4, 5, 6, 25, 30, 31) or with a degree from a "Berufsfachschule" or "Fachschule" for health care professions with a duration of at least 24 months (ts15219 = 2, 3 & duration >= 24; ts15304 = 2). Interviewees qualified for a senior rank within the civil service (ts15219 = 26; ts15304 = 26), with a degree from a university of applied sciences or a university (ts15219 = 10, 11, 12, 14, 17, 18, 19, 22; ts15219 = -98, -97, -96, -95, -55, 7, 8, 9, 13, 15, 16, 28, 29 & ts15201 = 9, 10, 11; ts15304 = 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22) were coded to "5A". Those with an additional doctorate or habilitation

[9] The duration was obtained using the start and end date of the vocational episodes given in ts1511m, ts1511y, t1512m and t1512y. Seasonal responses were recoded to the corresponding first month of the season, refusals and don't knows to the mid of the year and occurring responses "End of year" to "December".

(ts15219 = 20, 21; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 15, 16; ts15304 = 20, 21) were classified into "6".

Bringing together the codings, only the resulting maximum ISCED-97 scale scores of the two auxiliary variables within each line or point in time were considered for the respondents. Hence, for example, respondents with a "not determinable" school-leaving qualification and no further vocational degree were categorized into "0A/1A", while respondents with the same vocational information and a school-leaving qualification, leading to "2B", "2A" or "3A", were classified within the final ISCED-97 scale to the latter[10]. Considering second cycles, respondents with a school-leaving certificate leading to "3A" and a vocational degree leading to "3B" were coded to "4A" or "4B", depending on the chronological order. Here, "4A" includes all respondents with a vocational degree leading to "3B", followed up by a second school episode with a school-leaving qualification leading to "3A".[11] Equally, "4B" was used for qualifications reported in the opposite temporal order (cf. table 1). Finally, only lines in that the ISCED-97 (and/or ISCED-2011, CASMIN) classification scale scores changed their values were kept in the resulting Education file.[12]

2.2 Further ISCED-97 classifications

2.2.1 General remarks on further ISCED-97 classifications

Besides the ISCED-97-classification for the target persons, additional ones were derived for their partners, interviewed parental units plus corresponding partners, (primary/secondary) mothers/ fathers, children and siblings (responses from parental units and target persons).

Parallel to the derivation process for the target persons, two auxiliary variables were generated for each single classification. Concerning the highest school-leaving qualification, no such one or a qualification from a special needs school were coded to "0A/1A", a basic or qualifying school-leaving qualification to "2B", an intermediate secondary school-leaving qualification to "2A" and a school-leaving qualification with an entrance qualification for a university (of applied sciences) to "3A". Another type of school-leaving qualification and residual values were treated as not determinable ("-55") once again, occurring missings by design equally worded as "-54". The same applies to the variable for the last vocational degree with "-55" for a residual value or another type of vocational qualification and "-54" for missing by design. Using codable information, no vocational qualification was categorized into "0" ("no degree"), a dual vocational education or an ordinary civil

[10] Another example would be when a person's information on the highest school-leaving qualification is missing or not codeable but the respondent indicates to have a university degree as a further vocational qualification. Here, ISCED-97 was coded "5A". This assumeIba12.J88iNswgIhat the target person must have had any type of entrance qualification when starting and completing higher education.

[11] A vocational qualification leading simultaneously to an entrance certificate for a university of applied sciences or a university was treated in the same manner (as "4A").

[12] To give further information on the type of change (ISCED-97/-2011, CASMIN), separate variables (tx28110, tx28111, tx28112) were integrated into the Education file.

service vocational training into “3B”, a vocational training for a middle rank in the civil service into “3C”, a certificate as Master, Technician, for a higher rank within the civil service or a Bachelor’s/Master’s degree not awarded by a university of applied sciences or a university into “5B”, a university of applied sciences or a university degree or a qualification for a senior rank within the civil service into “5A” and a further doctorate or habilitation into “6”.

Since the generation of the auxiliary variables differs for each further classification, not only regarding the number of items and variables used but also regarding the necessary integration of potential updates of the highest school-leaving qualification and last vocational degree, a detailed overview of the items, coding and measures taken is given within the separate sections below.

2.2.2 ISCED-97 classification for the partners (ts31212_g1, spPartner)

For the partners of the targets it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (ts31212) and four items for the last vocational degree (ts31214, ts31219, ts31221, ts31222). A prior merge or integration of datasets wasn’t necessary since all relevant variables were available in the spPartner file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: ts31212 = -98, -97, 7

-54: ts31212 = -54

0A/1A: ts31212 = -20, 6

2B: ts31212 = 1, 2

2A: ts31212 = 3

3A: ts31212 = 4, 5

Last vocational degree

-55: ts31214 = -98, -97, 21; ts31214 = 3 & ≠ ts31222 = 1, 2, 3, 4; ts31214 = 8, 9, 10, 16 & ts31219 = ., -98, -97, -55

-54: ts31214 = -54

0: ts31214 = -20

3B: ts31214 = 1, 17, 18, 19; ts31222 = 1

3C: ts31222 = 2

5B: ts31214 = 2, 4, 5, 6, 7, 12, 13, 23; ts31214 = 8, 9, 10, 16 & ts31219 = 1, 2, 5; ts31222 = 3

5A: ts31214 = 14, 15; ts31214 = 8, 9, 10, 16 & ts31219 = 3, 4; ts31222 = 4

6: ts31214 = 11; ts31221= 1

Because the highest school-leaving qualification and last vocational degree were potentially updated, the data matrix was sorted using a previously generated partner ID and wave and both auxiliary variables were carried forward in time to fill in the missing information when no change was observed due to the questionnaire design[13]. The data were checked for consistency and "falling" schooling degrees were overwritten with the prior higher school degree information. For the final derivation of the ISCED-97 scale scores, only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination "3A" as highest school-leaving qualification and "3B" as last vocational degree, "4A" was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles "4A" and "4B" was possible and "4A" was used as a reference.

2.2.3 ISCED-97 classification for the partners (tf32319_g1, pTargetCATI)

For the partners of the targets it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (tf32319) and one item for the last vocational degree (tf32320). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: tf32319 = -98, -97, 7

-54: tf32319 = -54

0A/1A: tf32319 = -20, 6

2B: tf32319 = 1, 2

2A: tf32319 = 3

3A: tf32319 = 4, 5

Last vocational degree

-55: tf32320 = -98, -97, 21

-54: tf32320 = -54

0: tf32320 = -20

[13] This step was necessary because the highest school-leaving qualification was asked only when a target was surveyed for the first time, no prior schooling information was given, or, for the partners, in case of an occurring partner change. The same applies to the last vocational degree, which was updated only when a vocational change was stated explicitly in a corresponding filter question. The final scores therefore represent the last known combined information and are also provided and filled in waves where no (new) information was asked.

3B: tf32320 = 1, 17, 19

3C: tf32320 = 3[14]

5B: tf32320 = 2, 4, 5, 6, 7, 12, 13

5A: tf32320 = 8, 9, 10, 14, 15, 16[15]

6: tf32320 = 11

For the final derivation of the ISCED-97 scale scores, only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination "3A" as highest school-leaving qualification and "3B" as last vocational degree, "4A" was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles "4A" and "4B" was possible and "4A" was used as a reference.

2.2.4 ISCED-97 classification for the interviewed parental units (p731802_g1)

For the interviewed parental units it was possible to generate the two auxiliary variables by using two items for the highest school-leaving qualification (p731802, p731807) and four items for the last vocational degree (p731813, p731818, p731820; p731821). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pParent file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: p731802 = -98, -97, -95, 7; p731807 = -98, -97, 7

-54: p731802 = -54; p731807 = -54

0A/1A: p731802 = -20, 6; p731807 = -20, 6

2B: p731802 = 1, 2; p731807 = 1, 2

2A: p731802 = 3; p731807 = 3

3A: p731802 = 4, 5; p731807 = 4, 5

[14] Information on the rank within the civil service was not available since only a certificate for the civil service was collected. Therefore, no further differentiation between the ranks within the civil service was possible and a middle rank was used as a reference.

[15] For a Bachelor's/Master's/"Magister" or unspecified higher education degree, no information was collected on the type of tertiary educational institution. Therefore, no differentiation between a degree from a university of applied sciences, university or other institution was possible and a university degree was used as a reference.

Last vocational degree

-55: p731813 = -98, -97, 21; p731813 = 3 & p731821 ≠ 1, 2, 3, 4; p731813 = 8, 9, 10, 16 & p731818 = ., -98, -97

-54: p731813 = -54

0: p731813 = -20

3B: p731813 = 1, 17, 19; p731821 = 1

3C: p731821 = 2

5B: p731813 = 2, 4, 5, 6, 7, 12, 13; p731813 = 8, 9, 10, 16 & p731818 = 1, 2, 5; p731821 = 3

5A: p731813 = 14, 15; p731813 = 8, 9, 10, 16 & p731818 = 3, 4; p731821 = 4

6: p731813 = 11; p731820 = 1

Because the highest school-leaving qualification and last vocational degree were potentially updated, the data matrix was sorted using a previously generated parent ID and wave and both auxiliary variables were carried forward in time to fill in the missing information when no change was observed due to the questionnaire design. The data were checked for consistency and "falling" schooling degrees were overwritten with the prior higher school degree information. For the final derivation of the ISCED-97 scale scores, only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination "3A" as highest school-leaving qualification and "3B" as last vocational degree, "4A" was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles "4A" and "4B" was possible and "4A" was used as a reference.

2.2.5 ISCED-97 classification for the partners of interviewed parental units (p731852_g1)

For the partners of interviewed parental units it was possible to generate the two auxiliary variables by using two items for the highest school-leaving qualification (p731852, p731857) and four items for the last vocational degree (p731863, p731868, p731870, p731871). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pParent file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: p731852 = -98, -97, 7; p731857 = -98, -97, 7

-54: p731852 = -54; p731857 = -54

0A/1A: p731852 = -20, 6; p731857 = -20, 6

2B: p731852 = 1, 2; p731857 = 1, 2

2A: p731852 = 3; p731857 = 3

3A: p731852 = 4, 5; p731857 = 4, 5

Last vocational degree

-55: p731863 = -98, -97, 21; p731863 = 3 & p731871 ≠ 1, 2, 3, 4; p731863 = 8, 9, 10, 16 & p731868 = ., -98, -97

-54: p731863 = -54

0: p731863 = -20

3B: p731863 = 1, 17, 19; p731871 = 1

3C: p731871 = 2

5B: p731863 = 2, 4, 5, 6, 7, 12, 13; p731863 = 8, 9, 10, 16 & p731868 = 1, 2, 5; p731871 = 3

5A: p731863 = 14, 15; p731863 = 8, 9, 10, 16 & p731868 = 3, 4; p731871 = 4

6: p731863 = 11; p731870 = 1

Because the highest school-leaving qualification and last vocational degree were potentially updated, the data matrix was sorted using a previously generated partner ID and wave and both auxiliary variables were carried forward in time to fill in the missing information when no change was observed due to the questionnaire design. The data were checked for consistency and "falling" schooling degrees were overwritten with the prior higher school degree information. For the final derivation of the ISCED-97 scale scores, only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination "3A" as highest school-leaving qualification and "3B" as last vocational degree, "4A" was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles "4A" and "4B" was possible and "4A" was used as a reference.

2.2.6 ISCED-97 classification for the siblings reported by the parental unit (p732313_g1)

For the siblings it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (p732313) and four items for the last vocational degree (p732318, p732322, p732324, p732325). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the spParentSibling file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: p732313 = -98, -97, 7

-54: p732313 = -54

0A/1A: p732313 = -20, 6

2B: p732313 = 1, 2

2A: p732313 = 3

3A: p732313 = 4, 5

Last vocational degree

-55: p732318 = -97, -98, 21; p732318 = 3 & ≠ p732325 = 1, 2, 3, 4; p732318 = 8, 9, 10, 16 & p732322 = ., -98, -97

-54: p732318 = -54

0: p732318 = -20

3B: p732318 = 1, 17, 19; p732325 = 1

3C: p732325 = 2

5B: p732318 = 2, 4, 5, 6, 7, 12, 13; p732318 = 8, 9, 10, 16 & p732322 = 1, 2, 5; p732325 = 3

5A: p732318 = 14, 15; p732318 = 8, 9, 10, 16 & p732322 = 3, 4; p732325 = 4

6: p732318 = 11; p732324 = 1

For the final derivation of the ISCED-97 scale scores only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination “3A” as highest school-leaving qualification and “3B” as last vocational degree, “4A” was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles “4A” and “4B” was possible and “4A” was used as a reference.

2.2.7 ISCED-97 classification for the (primary) mothers (t731312_g1)

For the (primary)[16] mothers it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t731312) and four items for the last vocational degree (t731314, t731319, t731322, t731323). A prior merge or integration of datasets wasn’t necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

[16] This term refers to the corresponding (educational) items concerning the person that was identified as the mother by the respondents regardless of the underlying parental relationship status.

Highest school-leaving qualification

-55: t731312 = -98, -97, 7

-54: t731312 = -54

0A/1A: t731312 = -20, 6

2B: t731312 = 1, 2

2A: t731312 = 3

3A: t731312 = 4, 5

Last vocational degree

-55: t731314 = -98, -97, -55, 21; t731314 = 3 & ≠ t731323 = 1, 2, 3, 4; t731314 = 8, 9, 10, 16 & t731319 = ., -98, -97

-54: t731314 = -54

0: t731314 = -20

3B: t731314 = 1, 17, 19; t731323 = 1

3C: t731323 = 2

5B: t731314 = 2, 4, 5, 6, 7, 12, 13; t731314 = 8, 9, 10, 16 & t731319 = 1, 2, 5; t731323 = 3

5A: t731314 = 14, 15; t731314 = 8, 9, 10, 16 & t731319 = 3, 4; t731323 = 4

6: t731314 = 11; t731322 = 1

For the final derivation of the ISCED-97 scale scores, only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination “3A” as highest school-leaving qualification and “3B” as last vocational degree, “4A” was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles “4A” and “4B” was possible and “4A” was used as a reference.

2.2.8 ISCED-97 classification for the (secondary) mothers (t731324_g1)

For the (secondary) mothers it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t731324) and four items for the last vocational degree (t731326, t731331, t731333, t731334). A prior merge or integration of datasets wasn’t necessary as all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t731324 = -98, -97, -7

-54: t731324 = -54

0A/1A: t731324 = -20, 6

2B: t731324 = 1, 2

2A: t731324 = 3

3A: t731324 = 4, 5

Last vocational degree

-55: t731326 = -98, -97, -21; t731326 = 3 & ≠ t731334 = 1, 2, 3, 4; t731326 = 8, 9, 10, 16 & t731331 = ., -98, -97

-54: t731326 = -54

0: t731326 = -20

3B: t731326 = 1, 17, 19; t731334 = 1

3C: t731334 = 2

5B: t731326 = 2, 4, 5, 6, 7, 12, 13; t731326 = 8, 9, 10, 16 & t731331 = 1, 2, 5; t731334 = 3

5A: t731326 = 14, 15; t731326 = 8, 9, 10, 16 & t731331 = 3, 4; t731334 = 4

6: t731326 = 11; t731333 = 1

For the final derivation of the ISCED-97 scale scores only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination “3A” as highest school-leaving qualification and “3B” as last vocational degree, “4A” was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles “4A” and “4B” was possible and “4A” was used as a reference.

2.2.9 ISCED-97 classification for the (primary) fathers (t731362_g1)

For the (primary) fathers it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t731362) and four items for the last vocational degree (t731364, t731369, t731372, t731373). A prior merge or integration of datasets wasn’t necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t731362 = -98, -97, -55, 7

-54: t731362 = -54

0A/1A: t731362 = -20, 6

2B: t731362 = 1, 2

2A: t731362 = 3

3A: t731362 = 4, 5

Last vocational degree

-55: t731364 = -98, -97, -55, 21; t731364 = 3 & ≠ t731373 = 1, 2, 3, 4; t731364 = 8, 9, 10, 16 & t731369 = ., -98, -97

-54: t731364 = -54

0: t731364 = -20

3B: t731364 = 1, 17, 19; t731373 = 1

3C: t731373 = 2

5B: t731364 = 2, 4, 5, 6, 7, 12, 13; t731364 = 8, 9, 10, 16 & t731369 = 1, 2, 5; t731373 = 3

5A: t731364 = 14, 15; t731364 = 8, 9, 10, 16 & t731369 = 3, 4; t731373 = 4

6: t731364 = 11; t731372 = 1

For the final derivation of the ISCED-97 scale scores only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination “3A” as highest school-leaving qualification and “3B” as last vocational degree, “4A” was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles “4A” and “4B” was possible and “4A” was used as a reference.

2.2.10 ISCED-97 classification for the (secondary) fathers (t731374_g1)

For the (secondary) fathers it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t731374) and four items for the last vocational degree (t731376, t731381, t731383, t731384). A prior merge or integration of datasets wasn’t necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t731374 = -98, -97, 7

-54: t731374 = -54

0A/1A: t731374 = -20, 6

2B: t731374 = 1, 2

2A: t731374 = 3

3A: t731374 = 4, 5

Last vocational degree

-55: t731376 = -98, -97, 21; t731376 = 3 & ≠ t731384 = 1, 2, 3, 4; t731376 = 8, 9, 10, 16 & t731381 = ., -98, -97

-54: t731376 = -54

0: t731376 = -20

3B: t731376 = 1, 17, 19; t731384 = 1

3C: t731384 = 2

5B: t731376 = 2, 4, 5, 6, 7, 12, 13; t731376 = 8, 9, 10, 16 & t731381 = 1, 2, 5; t731384 = 3

5A: t731376 = 14, 15; t731376 = 8, 9, 10, 16 & t731381 = 3, 4; t731384 = 4

6: t731376 = 11; t731383 = 1

For the final derivation of the ISCED-97 scale scores only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination “3A” as highest school-leaving qualification and “3B” as last vocational degree, “4A” was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles “4A” and “4B” was possible and “4A” was used as a reference.

2.2.11 ISCED-97 classification for the siblings reported by the target persons (t732313_g1)

For the siblings it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t732313) and one item for the last vocational degree (t732318). A prior merge or integration of datasets wasn’t necessary since all relevant variables were available in the spSibling file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t732313 = -98, -97, -21, 7

-54: t732313 = -54

0A/1A: t732313 = -20, 0, 6

2B: t732313 = 1, 2

2A: t732313 = 3

3A: t732313 = 4, 5

Last vocational degree

-55: t732318 = -97, -98, 21

-54: t732318 = -54

0: t732318 = -20, 0

3B: t732318 = 1, 17, 18, 19

3C: t732318 = 3[17]

5B: t732318 = 2, 4, 5, 6, 7, 12, 13, 23

5A: t732318 = 8, 9 ,10, 14, 15, 16[18]

6: t732318 = 11

For the final derivation of the ISCED-97 scale scores only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination "3A" as highest school-leaving qualification and "3B" as last vocational degree, "4A" was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles "4A" and "4B" was possible and "4A" was used as a reference.

2.2.12 ISCED-97 classification for the children (ts33214_g1)

For the children it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (ts33214) and four items for the last vocational degree (ts33220, ts33225, ts33227, ts33228). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the spChild file. The auxiliary variables were generated along the following codings:

[17] Information on the rank within the civil service was not available since only a certificate for the civil service was collected. Therefore, no further differentiation between the ranks within the civil service was possible and a middle rank was used as a reference.

[18] For a Bachelor's/Master's/"Magister" or unspecified higher education degree, no information was collected on the type of tertiary educational institution. Therefore, no differentiation between a degree from a university of applied sciences, university or other institution was possible and a university degree was used as a reference.

Highest school-leaving qualification

-55: p732313 = -98, -97, -55, 7

-54: p732313 = -54

0A/1A: p732313 = -20, 6

2B: p732313 = 1, 2

2A: p732313 = 3

3A: p732313 = 4, 5

Last vocational degree

-55: ts33220 = -97, -98, -55, 21; ts33220 = 3 & ≠ ts33228 = 1, 2, 3, 4; ts33220 = 8, 9, 10, 16 & ts33225 = ., -98, -97

-54: ts33220 = -54

0: ts33220 = -20

3B: ts33220 = 1, 17, 18, 19; ts33228 = 1

3C: ts33228 = 2

5B: ts33220 = 2, 4, 5, 6, 7, 12, 13, 23; ts33220 = 8, 9, 10, 16 & ts33225 = 1, 2, 5; ts33228 = 3

5A: ts33220 = 14, 15; ts33220 = 8, 9, 10, 16 & ts33225 = 3, 4; ts33228 = 4

6: ts33220 = 11; ts33227 = 1

For the final derivation of the ISCED-97 scale scores only the resulting maxima ones of the auxiliary variables were used with few exceptions concerning the treatment of residual values and missings by design (cf. table 3). Furthermore, in the presence of the combination “3A” as highest school-leaving qualification and “3B” as last vocational degree, “4A” was given to the concerning subjects. Information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation between second cycles “4A” and “4B” was possible and “4A” was used as a reference.

3 ISCED-2011 classification

3.1 ISCED-2011 classification for the target persons (tx28104)

Since the ISCED scale was updated to ISCED-2011 during the surveys in SC4, this version was also included in the generation of education classifications. The derivation processes for the ISCED-2011 scale scores were like the procedures for the ISCED-97 classifications in the corresponding sections above. The procedures described in section 2.1.1 also apply here. Again, two auxiliary variables for the highest school-leaving and last vocational qualification were generated and, subsequently, the ISCED-2011 scale scores were obtained by combining them.

On a variable level, ISCED-2011 was built on the following combinations of categories: Beginning with the variable for the highest school-leaving qualification, target persons with a residual value (ts11209 = -98, -97, -95, -55; ts11302 = -98, -97) or another type of school-leaving qualification (ts11209 = 7; ts11302 = 7) were initially treated as not determinable ("-55"). Concerning terminable statements, respondents with no school-leaving qualification (ts11209 = -21, -20; ts11302 = -21, -20) or an elementary school type (ts11209 = ., -98, -97, -95, -55, 7 & ts11204 = 1, 2) [19] were classified into "0". Interviewees with a basic or qualifying school-leaving qualification (ts11209 = 1, 2; ts11209 = -98, -97, -95, -55, 7 & ts11204 = 3, 4; ts11302 = 1, 2), one from a special needs school (ts11209 = 6; ts11209 = -98, -97, -95, -55, 7 & ts11204 = 12; ts11302 = 6) or an intermediate secondary school-leaving qualification (ts11209 = 3; ts11209 = -98, -97, -95, -55, 7 & ts11204 = 5; ts11302 = 3) were categorized into ISCED-2011 "244". Those with an entrance certificate for a university of applied sciences or university (ts11209 = 4, 5; ts11209 = -98, -97, -95, -55, 7 & ts11204 = 8, 9, 15; ts11302 = 4, 5) into "344". Remaining cases were treated as system-missing.

For the variable to capture the last vocational degree, targets with another, not specified type of vocational qualification (ts15219 = 28, 29; ts15304 = 28, 29), a residual value (ts15219 = -98, -97, -96, -95, -55; ts15304 = -98, -97, -55) or an invalid response concerning a successfully completed vocational qualification (ts15218 = -98, -97) were initially treated as not determinable ("-55") and remaining cases as system-missing. Then respondents with no vocational degree (ts15218 = 2; ts15219 = -20; ts15304 = -20) or vocational courses as a further vocational qualification (ts15219 = 27; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 13, 14; sptype = 24 & ts15291_g10 = "K …"; ts15304 = 27; sptype = 40 & ts15301_g10 = "K …") were coded to "0" (= "no degree"). A successfully completed pre-vocational training course, measurement or year (sptype = 23) was categorized into "254". An ordinary or middle rank within the civil service (ts15219 = 23, 24; ts15304 = 23, 24) was classified into "353". The same applies for a vocational qualification from a "Berufsfachschule" or "Fachschule" for health care professions with a duration of less than 24 months (ts15219 = 2, 3 & duration[20] < 24) or a missing value in "duration" (ts15219 = 2, 3 & duration = .), as well as an other vocational qualification or residual value with type "Fachschule" for health care professions and a duration of less than 24 months or a missing value in "duration" (ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 2 & duration < 24; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 2 & duration = .). Targets with a journeyperson's or an assistant's certificate (ts15219 = 1; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 1; ts15304 = 1), a certified professional specialist certificate (ts15219 = 32;

[19] Generally speaking, if the residual category was reported for the certificate information (e.g. ts11209 = 7), but an informative type or similar information was given elsewhere (like ts11204 = 3), the most likely respective certificate of this track or program type was assumed.

[20] The duration was obtained using the start and end date of the vocational episodes given in ts1511m, ts1511y, t1512m and t1512y. Seasonal responses were recoded to the corresponding first month of the season, refusals and don't knows to the mid of the year and occurring responses "End of year" to "December".

ts15304 = 32), a vocational qualification from a "Berufsfachschule" (ts15219 = 3; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 3; ts15304 = 3) or an examination by the Chamber of Industry and Commerce (ts15219 = 27 & ts15291_g10 = -104, -103, -102,-101, "B …"; ts15304 = 27 & ts15301_g10 = -104, -103, -102,-101, "B …") were classified into "354". A degree from a "Fachschule" for health care professions with a duration of at least 24 months (ts15219 = 2 & duration >= 24; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 2 & duration >= 24; ts15304 = 2) were coded to "453". "550" was assigned to respondents with a certificate as Master or Technician, Bachelor or Master Professional or from a "Fachschule" (ts15219 = 4, 5, 6, 30, 31; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 4, 5; ts15304 = 4, 5, 6, 30, 31). Respondents with a Bachelor`s degree or a diploma degree from a "Berufsakademie", university of applied sciences or college of public administration (ts15219 = 8, 10, 12, 13; ts15219 = 7 & ts15201 = 7, 8, 9; ts15304 = 8, 10, 12, 13) were classified into "640". A higher rank within the civil service was classified into "650" (ts15219 = 25; ts15304 = 25). A Master`s degree, diploma from an university, "Magister", state examination, medical specialist qualification or an other vocational qualification or residual value with type university (ts15219 = 9, 11, 14, 15, 16, 17, 18, 19, 22; ts15219 = 7 & ts15201 = 10; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 11; ts15304 = 9, 11, 14, 15, 16, 17, 18, 19, 22) was categorized into "740". Interviewees qualified for a senior rank within the civil service (ts15219 = 26; ts15304 = 26) were coded to "750". Those with an additional doctorate or habilitation (ts15219 = 20, 21; ts15219 = -98, -97, -96, -95, -55, 28, 29 & ts15201 = 15, 16; ts15304 = 20, 21) were classified into "840".

Bringing together the codings, only the resulting maximum ISCED-2011 scale scores of the two auxiliary variables within each line or point in time were considered for the respondents. Hence, for example, respondents with a "not determinable" school-leaving qualification and a certificate as Technician were categorized into "550", while respondents with no vocational information and a school-leaving qualification, leading to "244" or "344", were classified within the final ISCED-2011 scale to the latter[21]. Otherwise, there was another coding condition in the case of a completed vocational training program as the last vocational qualification, classified as "254." This code was assigned in cases where no school-leaving qualification, coded as '244' or "344", was available. If such a school-leaving qualification was available, it was coded instead. Considering second cycles, respondents with a school-leaving certificate leading to "344" and a vocational degree leading to "353", "354" or "453" were coded to "444" or "454", depending on the chronological order. Here, "444" includes all respondents with a vocational degree leading to "353", "354" or "453" followed up

[21] Another example would be when a person's information on the highest school-leaving qualification is missing or not codeable but the respondent indicates to have a Bachelor`s degree as a further vocational qualification. Here, ISCED-2011 was coded "640". This assumes that the target person must have had any type of entrance qualification when starting and completing higher education.

by a second school episode with a school-leaving qualification leading to "344".[22] Equally, "454" was used for qualifications reported in the opposite temporal order.

3.2 Further ISCED-2011 classifications

3.2.1 General remarks on further ISCED-2011 classifications

Again, additional ISCED-2011 variables were derived for all context persons listed in section 2.2.1. Here, too, two auxiliary variables were generated first. Unlike ISCED-97, direct conversion to an ISCED-2011 code was not possible, as the subsequent combination of the highest school and last vocational qualifications follows a somewhat more complex structure.

Concerning the highest school-leaving qualification ("schoolisc"), no such one or a qualification from a special needs school were coded to "0", a basic or qualifying school-leaving qualification to "1", an intermediate secondary school-leaving qualification to "2" and a school-leaving qualification with an entrance qualification for a university (of applied sciences) to "3". Another type of school-leaving qualification and residual values were treated as not determinable ("-55") once again, occurring missings by design equally worded as "-54".

The same applies to the variable for the last vocational degree ("vocisc") with "-55" for a residual value or another type of vocational qualification and "-54" for missing by design. Using codable information, no vocational qualification was categorized into "0" ("no degree"), an in-company apprenticeship, GDR-qualification as a semi-skilled worker or an ordinary civil service vocational training into "1", a vocational training for a middle rank in the civil service into "11"[23], a dual vocational education, "Berufsfachschule" or a certified professional specialist certificate into "2", a degree from a "Fachschule" for health care professions into "3", a certificate as Master, Technician, Bachelor or Master Professional or from a "Fachschule" into "4", a Bachelor`s degree into "5", a higher rank within the civil service or a certificate from a "Fachschule" in the former GDR into "6", a Master's degree into "7", a senior rank within the civil service into "8" and a further doctorate or habilitation into "9".

Both auxiliary variables were subsequently used to obtain the final ISCED-2011 codes. Context persons with a "not determinable" school-leaving and vocational qualification (schoolisc = -55 & vocisc = -55; schoolisc = . & vocisc = -55; schoolisc = -55 & vocisc = .; schoolisc = -54 & vocisc = -55; schoolisc = -55 & vocisc = -54) were classified into a corresponding "-55". Similarly, a missing by design in both auxiliary variables (schoolisc = -54 & vocisc = -54) also resulted in a "-54" in the ISCED-2011 variable. No school leaving certificate and no vocational qualification, or in combination with a

[22] A vocational qualification leading simultaneously to an entrance certificate for a university of applied sciences or a university was treated in the same manner (as "444").

[23] In the event that no differentiated gradation of civil servant status was raised as a further question, the middle civil servant rank was assumed as a convention.

missing value in one of the two (schoolisc = 0 & vocisc = ., -55, -54, 0; schoolisc = ., -55, -54, 0 & vocisc = 0), resulted in ISCED-2011 code "0." A basic/qualifying or intermediate secondary school-leaving qualification in combination with no or missing information about a vocational qualification (schoolisc = 1, 2 & vocisc = ., -55, -54, 0) was assigned a "244". An in-company apprenticeship, GDR-qualification as a semi-skilled worker or an ordinary civil service vocational training with an intermediate secondary school-leaving qualification or less (schoolisc = ., -55, -54, 0, 1, 2 & vocisc = 1) was coded to "254". An entrance qualification for a university (of applied sciences) with no or missing information about a vocational qualification (schoolisc = 3 & vocisc = ., -55, -54, 0) was given a code of ISCED-2011 "344". No entrance qualification available for a university (of applied sciences) in combination with a vocational training for a middle rank in the civil service (schoolisc = 11 & vocisc != 3) was classified into "353", in combination with a dual vocational education, "Berufsfachschule" or a certified professional specialist certificate (schoolisc = 2 & vocisc != 3) into "354"and in combination with a degree from a "Fachschule" for health care professions (schoolisc = 3 & vocisc != 3) into "453". In the case of an existing university entrance qualification (schoolisc = 2, 3, 11 & vocisc = 3), a "454" was assigned. This also applies to an in-company apprenticeship, GDR-qualification as a semi-skilled worker or an ordinary civil service vocational training (schoolisc = 1 & vocisc = 3).[24] Finally, a certificate as Master, Technician, Bachelor or Master Professional or from a "Fachschule" (vocisc = 4) was classified into "550", a Bachelor`s degree (vocisc = 5) into "640", a higher rank within the civil service or a certificate from a "Fachschule" in the former GDR (vocisc = 6) into "650", a Master's degree (vocisc = 7) into "750", a senior rank within the civil service (vocisc = 8) into "750" and a further doctorate or habilitation (vocisc = 9) into "840".

Since the generation of the auxiliary variables differs for each further classification, not only regarding the number of items and variables used but also regarding the necessary integration of potential updates of the highest school-leaving qualification and last vocational degree, a detailed overview of the items, coding and measures taken is given within the separate sections below.

3.2.2 ISCED-2011 classification for the partners (ts31212_g4, spPartner)

For the partners of the targets it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (ts31212) and four items for the last vocational degree (ts31214, ts31217, ts31221, ts31222). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the spPartner file. The auxiliary variables were generated along the following codings:

[24] This was applied because information on the temporal order was not available since only the highest degrees were collected. Therefore, no further differentiation was possible in consideration of second cycles.

Highest school-leaving qualification

-55: ts31212 = -98, -97, 7

-54: ts31212 = -54

0: ts31212 = -20, 6

1: ts31212 = 1, 2

2: ts31212 = 3

3: ts31212 = 4, 5

Last vocational degree

-55: ts31214 = -98, -97, 21; ts31214 = 3 & ts31222 ≠ 1, 2, 3, 4; ts31214 = 12, 13, 14, 15, 16 & ts31217 = ., -98, -97, -55, 5

-54: ts31214 = -54

0: ts31214 = -20

1: ts31214 = 17, 19; ts31222 = 1

11: ts31222 = 2

2: ts31214 = 1, 5, 18

3: ts31214 = 4

4: ts31214 = 2, 6, 23

5 ts31214 = 8; ts31214 = 12, 13, 14, 15, 16 & ts31217 = 1

6 ts31214 = 7; ts31222 = 3

7 ts31214 = 9, 10; ts31214 = 12, 13, 14, 15, 16 & ts31217 = 2, 3

8 ts31222 = 4

9 ts31214 = 11; ts31214 = 12, 13, 14, 15, 16 & ts31217 = 4; ts31221 = 1

Because the highest school-leaving qualification and last vocational degree were potentially updated, the data matrix was sorted using a previously generated partner ID and wave and both auxiliary variables were carried forward in time to fill in the missing information when no change was observed due to the questionnaire design. The data were checked for consistency and "falling" schooling degrees were overwritten with the prior higher school degree information. The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.3 ISCED-2011 classification for the partners (tf32319_g1, pTargetCATI)

For the partners of the targets it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (tf32319) and one item for the last vocational degree

(tf32320). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: tf32319 = -98, -97, 7

-54: tf32319 = -54

0: tf32319 = -20, 6

1: tf32319 = 1, 2

2: tf32319 = 3

3: tf32319 = 4, 5

Last vocational degree

-55: tf32320 = -98, -97, 21

-54: tf32320 = -54

0: tf32320 = -20

1: tf32320 = 17, 19

11: ts33228 = 3[25]

2: tf32320 = 1, 5

3: tf32320 = 4

4: tf32320 = 2, 6

5 tf32320 = 8; tf32320 = 12, 13, 14, 15, 16[26]

6 tf32320 = 7

7 tf32320 = 9, 10

9 tf32320 = 11

The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

[25] Information on the rank within the civil service was not available since only a certificate for the civil service was collected. Therefore, no further differentiation between the ranks within the civil service was possible and a middle rank was used as a reference.

[26] For a university of cooperative education/college of public administration/university of applied sciences/university or degree from a higher education institution, no information was collected on the type of higher educational qualification. Therefore, no differentiation was possible and a Bachelor's degree was used as a reference.

3.2.4 ISCED-2011 classification for the interviewed parental units (p731802_g4)

For the interviewed parental units it was possible to generate the two auxiliary variables by using two items for the highest school-leaving qualification (p731802, p731807) and four items for the last vocational degree (p731813, p731816, p731820, p731821). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pParent file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: p731802 = -98, -97, -95, 7; p731807 = -98, -97, 7

-54: p731802 = -54; p731807 = -54

0: p731802 = -20, 6; p731807 = -20, 6

1: p731802 = 1, 2; p731807 = 1, 2

2: p731802 = 3; p731807 = 3

3: p731802 = 4, 5; p731807 = 4, 5

Last vocational degree

-55: p731813 = -98, -97, 21; p731813 = 3 & p731821 ≠ 1, 2, 3, 4; p731813 = 12, 13, 14, 15, 16 & p731816 = ., -98, -97, 5

-54: p731813 = -54

0: p731813 = -20

1: p731813 = 17, 19; p731821 = 1

11: p731821 = 2

2: p731813 = 1, 5

3: p731813 = 4

4: p731813 = 2, 6

5 p731813 = 8; p731813 = 12, 13, 14, 15, 16 & p731816 = 1

6 p731813 = 7; p731821 = 3

7 p731813 = 9, 10; p731813 = 12, 13, 14, 15, 16 & p731816 = 2, 3

8 p731821 = 4

9 p731813 = 11; p731813 = 12, 13, 14, 15, 16 & p731816 = 4; p731820 = 1

Because the highest school-leaving qualification and last vocational degree were potentially updated, the data matrix was sorted using a previously generated parent ID and wave and both auxiliary variables were carried forward in time to fill in the missing information when no change was

observed due to the questionnaire design[27]. The data were checked for consistency and "falling" schooling degrees were overwritten with the prior higher school degree information. The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.5 ISCED-2011 classification for the partners of interviewed parental units (p731852_g4)

For the partners of interviewed parental units it was possible to generate the two auxiliary variables by using two items for the highest school-leaving qualification (p731852, p731857) and four items for the last vocational degree (p731863, p731866, p731870, p731871). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pParent file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: p731852 = -98, -97, 7; p731857 = -98, -97, 7

-54: p731852 = -54; p731857 = -54

0: p731852 = -20, 6; p731857 = -20, 6

1: p731852 = 1, 2; p731857 = 1, 2

2: p731852 = 3; p731857 = 3

3: p731852 = 4, 5; p731857 = 4, 5

Last vocational degree

-55: p731863 = -98, -97, 21; p731863 = 3 & p731871 ≠ 1, 2, 3, 4; p731863 = 12, 13, 14, 15, 16 & p731866 = ., -98, -97, 5

-54: p731863 = -54

0: p731863 = -20

1: p731863 = 17, 19; p731871 = 1

11: p731871 = 2

2: p731863 = 1, 5

3: p731863 = 4

4: p731863 = 2, 6

5 p731863 = 8; p731863 = 12, 13, 14, 15, 16 & p731866 = 1

[27] This step was necessary because the highest school-leaving qualification was asked only when a parental unit was surveyed for the first time, no prior schooling information was given, or, for the partners, in case of an occurring partner change. The same applies to the last vocational degree, which was updated only when a vocational change was stated explicitly in a corresponding filter question. The final scores therefore represent the last known combined information and are also provided and filled in waves where no (new) information was asked.

6 p731863 = 7; p731871 = 3

7 p731863 = 9, 10; p731863 = 12, 13, 14, 15, 16 & p731866 = 2, 3

8 p731871 = 4

9 p731863 = 11; p731863 = 12, 13, 14, 15, 16 & p731866 = 4; p731870 = 1

Because the highest school-leaving qualification and last vocational degree were potentially updated, the data matrix was sorted using a previously generated partner ID and wave and both auxiliary variables were carried forward in time to fill in the missing information when no change was observed due to the questionnaire design. The data were checked for consistency and "falling" schooling degrees were overwritten with the prior higher school degree information. The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.6 ISCED-2011 classification for the siblings reported by the parental unit (p732313_g4)

For the siblings it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (p732313) and four items for the last vocational degree (p732318, p732320, p732324, p732325). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the spParentSibling file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: p732313 = -98, -97, 7

-54: p732313 = -54

0: p732313 = -20, 6

1: p732313 = 1, 2

2: p732313 = 3

3: p732313 = 4, 5

Last vocational degree

-55: p732318 = -98, -97, 21; p732318 = 3 & p732325 ≠ 1, 2, 3, 4; p732318 = 12, 13, 14, 15, 16 & p732320 = ., -98, -97, 5

-54: p732318 = -54

0: p732318 = -20

1: p732318 = 17, 19; p732325 = 1

11: p732325 = 2

2: p732318 = 1, 5

3: p732318 = 4

4: p732318 = 2, 6

5 p732318 = 8; p732318 = 12, 13, 14, 15, 16 & p732320 = 1

6 p732318 = 7; p732325 = 3

7 p732318 = 9, 10; p732318 = 12, 13, 14, 15, 16 & p732320 = 2, 3

8 p732325 = 4

9 p732318 = 11; p732318 = 12, 13, 14, 15, 16 & p732320 = 4; p732324 = 1

The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.7 ISCED-2011 classification for the (primary) mothers (t731312_g4)

For the (primary) mothers it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t731312) and four items for the last vocational degree (t731314, t731317, t731322, t731323). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t731312 = -98, -97, 7

-54: t731312 = -54

0: t731312 = -20, 6

1: t731312 = 1, 2

2: t731312 = 3

3: t731312 = 4, 5

Last vocational degree

-55: t731314 = -98, -97, -55, 21; t731314 = 3 & t731323 ≠ 1, 2, 3, 4; t731314 = 12, 13, 14, 15, 16 & t731317 = ., -98, -97, -55, 5

-54: t731314 = -54

0: t731314 = -20

1: t731314 = 17, 19; t731323 = 1

11: t731323 = 2

2: t731314 = 1, 5

3: t731314 = 4

4: t731314 = 2, 6

5 t731314 = 8; t731314 = 12, 13, 14, 15, 16 & t731317 = 1

6 t731314 = 7; t731323 = 3

7 t731314 = 9, 10; t731314 = 12, 13, 14, 15, 16 & t731317 = 2, 3

8 t731323 = 4

9 t731314 = 11; t731314 = 12, 13, 14, 15, 16 & t731317 = 4; t731322 = 1

The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.8 ISCED-2011 classification for the (secondary) mothers (t731324_g4)

For the (secondary) mothers it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t731324) and four items for the last vocational degree (t731326, t731329, t731333, t731334). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t731324 = -98, -97, 7

-54: t731324 = -54

0: t731324 = -20, 6

1: t731324 = 1, 2

2: t731324 = 3

3: t731324 = 4, 5

Last vocational degree

-55: t731326 = -98, -97, -55, 21; t731326 = 3 & t731334 ≠ 1, 2, 3, 4; t731326 = 12, 13, 14, 15, 16 & t731329 = ., -98, -97, -55, 5

-54: t731326 = -54

0: t731326 = -20

1: t731326 = 17, 19; t731334 = 1

11: t731334 = 2

2: t731326 = 1, 5

3: t731326 = 4

4: t731326 = 2, 6

5 t731326 = 8; t731326 = 12, 13, 14, 15, 16 & t731329 = 1

6 t731326 = 7; t731334 = 3

7 t731326 = 9, 10; t731326 = 12, 13, 14, 15, 16 & t731329 = 2, 3

8 t731334 = 4

9 t731326 = 11; t731326 = 12, 13, 14, 15, 16 & t731329 = 4; t731333 = 1

The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.9 ISCED-2011 classification for the (primary) fathers (t731362_g4)

For the (primary) fathers it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t731362) and four items for the last vocational degree (t731364, t731367, t731372, t731373). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t731362 = -98, -97, -55, 7

-54: t731362 = -54

0: t731362 = -20, 6

1: t731362 = 1, 2

2: t731362 = 3

3: t731362 = 4, 5

Last vocational degree

-55: t731364 = -98, -97, -55, 21; t731364 = 3 & t731373 ≠ 1, 2, 3, 4; t731364 = 12, 13, 14, 15, 16 & t731367 = ., -98, -97, -55, 5

-54: t731364 = -54

0: t731364 = -20

1: t731364 = 17, 19; t731373 = 1

11: t731373 = 2

2: t731364 = 1, 5

3: t731364 = 4

4: t731364 = 2, 6

5 t731364 = 8; t731364 = 12, 13, 14, 15, 16 & t731367 = 1

6 t731364 = 7; t731373 = 3

7 t731364 = 9, 10; t731364 = 12, 13, 14, 15, 16 & t731367 = 2, 3

8 t731373 = 4

9 t731364 = 11; t731364 = 12, 13, 14, 15, 16 & t731367 = 4; t731372 = 1

The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.10 ISCED-2011 classification for the (secondary) fathers (t731374_g4)

For the (secondary) fathers it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t731374) and four items for the last vocational degree (t731376, t731379, t731383, t731384). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the pTargetCATI file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t731374 = -98, -97, 7

-54: t731374 = -54

0: t731374 = -20, 6

1: t731374 = 1, 2

2: t731374 = 3

3: t731374 = 4, 5

Last vocational degree

-55: t731376 = -98, -97, 21; t731376 = 3 & t731384 ≠ 1, 2, 3, 4; t731376 = 12, 13, 14, 15, 16 & t731379 = ., -98, -97, 5

-54: t731376 = -54

0: t731376 = -20

1: t731376 = 17, 19; t731384 = 1

11: t731384 = 2

2: t731376 = 1, 5

3: t731376 = 4

4: t731376 = 2, 6

5 t731376 = 8; t731376 = 12, 13, 14, 15, 16 & t731379 = 1

6 t731376 = 7; t731384 = 3

7 t731376 = 9, 10; t731376 = 12, 13, 14, 15, 16 & t731379 = 2, 3

8 t731384 = 4

9 t731376 = 11; t731376 = 12, 13, 14, 15, 16 & t731379 = 4; t731383 = 1

The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.11 ISCED-2011 classification for the siblings reported by the target persons (t732313_g4)

For the siblings it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (t732313) and one item for the last vocational degree (t732318). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the spSibling file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: t732313 = -98, -97, -21, 7

-54: t732313 = -54

0: t732313 = -20, 0, 6

1: t732313 = 1, 2

2: t732313 = 3

3: t732313 = 4, 5

Last vocational degree

-55: t732318 = -98, -97, 21

-54: t732318 = -54

0: t732318 = -20, 0

1: t732318 = 17, 19

11: ts33228 = 3[28]

2: t732318 = 1, 5, 18

3: t732318 = 4

4: t732318 = 2, 6, 23

[28] Information on the rank within the civil service was not available since only a certificate for the civil service was collected. Therefore, no further differentiation between the ranks within the civil service was possible and a middle rank was used as a reference.

5 t732318 = 8; t732318 = 12, 13, 14, 15, 16[29]

6 t732318 = 7

7 t732318 = 9, 10

9 t732318 = 11

The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

3.2.12 ISCED-2011 classification for the children (ts33214_g4)

For the children it was possible to generate the two auxiliary variables by using one item for the highest school-leaving qualification (ts33214) and four items for the last vocational degree (ts33220, ts33223, ts33227, ts33228). A prior merge or integration of datasets wasn't necessary since all relevant variables were available in the spChild file. The auxiliary variables were generated along the following codings:

Highest school-leaving qualification

-55: ts33214 = -98, -97, -55, 7

-54: ts33214 = -54

0: ts33214 = -20, 6

1: ts33214 = 1, 2

2: ts33214 = 3

3: ts33214 = 4, 5

Last vocational degree

-55: ts33220 = -98, -97, -55, 21; ts33220 = 3 & ts33228 ≠ 1, 2, 3, 4; ts33220 = 12, 13, 14, 15, 16 & ts33223 = ., -98, -97, 5

-54: ts33220 = -54

0: ts33220 = -20

1: ts33220 = 17, 19; ts33228 = 1

11: ts33228 = 2

2: ts33220 = 1, 5, 18

3: ts33220 = 4

[29] For a university of cooperative education/college of public administration/university of applied sciences/university or degree from a higher education institution, no information was collected on the type of higher educational qualification. Therefore, no differentiation was possible and a Bachelor's degree was used as a reference.

4: ts33220 = 2, 6, 23

5 ts33220 = 8; ts33220 = 12, 13, 14, 15, 16 & ts33223 = 1

6 ts33220 = 7; ts33228 = 3

7 ts33220 = 9, 10; ts33220 = 12, 13, 14, 15, 16 & ts33223 = 2, 3

8 ts33228 = 4

9 ts33220 = 11; ts33220 = 12, 13, 14, 15, 16 & ts33223 = 4; ts33227 = 1

The final ISCED-2011 codes were then obtained based on the combination of the two auxiliary variables, as explained in section 3.2.1.

4 CASMIN classification

The derivation processes for the CASMIN scale scores were similar to the procedures for the ISCED-97 classifications in the corresponding sections above. Initially, two auxiliary variables for the highest school-leaving and last vocational qualification were generated and, subsequently, the CASMIN scale scores were obtained by combining them. Considering a relationship between the ISCED-97 and CASMIN classification, it was possible to utilize the auxiliary variables of the former as a starting point for the corresponding latter ones, modified by some CASMIN-specific changes.

4.1 CASMIN specific modifications and combinations for the target persons (tx28101)

In a first step, the two auxiliary ISCED-97 variables already available in the Education file frame (see section 2.1.2) were cloned. Then, the cloned auxiliary variable with the information on the highest school-leaving qualification of the targets was recoded to a system-missing for all observations with only a successfully completed vocational training course, measurement, or year (sptype = 23). This was done because no appropriate equivalent qualification is given in the CASMIN scheme. No further modifications were necessary for the general schooling CASMIN auxiliary variable.

For the auxiliary variable capturing the last vocational degree it was feasible to keep the information “not determinable” and “no vocational qualification” in the cloned auxiliary variable. Furthermore, respondents with an ISCED-97 scale score of “3B”, “3C”, or “5B” were summarized into only one new category containing those with a vocational specific schooling or training. Indeed, it was not practicable to use the given information to capture study participants with a vocational degree from a university of applied sciences or a university. Here, it was necessary to generate two new categories consisting of targets with either a degree from a university of applied sciences (ts15219 = 10 ; ts15219 = -98, -97, -96, -95, -55, 7, 8, 9, 13, 15, 16, 28, 29 & ts15201 = 9; ts15304 = 10) or a university (ts15219 = 11, 12, 14, 17, 18, 19, 20, 21, 22, 26; ts15219 = -98, -97, -96, -95, -55, 7, 8, 9, 13, 15, 16, 28, 29 & ts15201 = 10, 11; ts15304 = 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 26).

Remaining cases were treated as a system-missing value again. The final CASMIN scale scores were subsequently derived along the combinations shown in table 2.

4.2 CASMIN specific modifications and combinations for further persons (ts31212_g2, tf32319_g2, p731802_g2, p731852_g2, p732313_g2, t731312_g2, t731324_g2, t731362_g2, t731374_g2, t732313_g2, ts33214_g2)

For the CASMIN scales of the partners, interviewed parental units plus their partner(s), the (primary/ secondary) mothers/fathers and siblings, it was feasible to use the corresponding ISCED-97 auxiliary variables for the highest school-leaving qualification without any further modifications. As for the target persons, the corresponding auxiliary variables for the last vocational degree were gained in a first step by combining those with an ISCED-97 of "3B", "3C" and "5B" to a new category. In a second step, those with a degree from a university (of applied sciences) were obtained by combining "5A" and "6". Because "5A" includes not only those with a degree from a university of applied sciences but also from a university, the respective degrees were distinguished from each other within a last step by recoding all subjects into a new category if a degree from a university of applied sciences was stated explicitly. The subjects were recoded to the new category along the following codings:

Partners (spPartner):	ts31214 = 14; ts31214 = 3, 8, 9, 10, 11, 12, 13, 16 & p732322 = 3
Partners (pTargetCATI):	tf32320 = 14[30]
Parental units:	p731813 = 14; p731813 = 3, 8, 9, 10, 11, 12, 13, 16 & p731818 = 3
Partners parental units:	p731863 = 14; p731863 = 3, 8, 9, 10, 11, 12, 13, 16 & p731868 = 3
Siblings (parental units):	p732318 = 14; p732318 = 3, 8, 9, 10, 11, 12, 13, 16 & p732322 = 3
(Primary) mothers:	t731314 = 14; t731314 = 3, 8, 9, 10, 11, 12, 13, 16 & t731319 = 3
(Secondary) mothers:	t731326 = 14; t731326 = 3, 8, 9, 10, 11, 12, 13, 16 & t731331 = 3
(Primary) fathers:	t731364 = 14; t731364 = 3, 8, 9, 10, 11, 12, 13, 16 & t731369 = 3
(Secondary) fathers:	t731376 = 14; t731376 = 3, 8, 9, 10, 11, 12, 13, 16 & t731381 = 3
Siblings (target persons):	t732318 = 14
Children	ts33220 = 14; ts33220 = 3, 8, 9, 10, 11, 12, 13, 16 & ts33225 = 3

Parallel to the derivation of the ISCED-97 scale scores, the two auxiliary variables were additionally carried forward in time for the partners (spPartner), interviewed parental units and their partners. The final CASMIN scale scores were subsequently derived along the combinations shown in table 4.

[30] For a Bachelor's/Master's/"Magister" or unspecified higher edcuation degree, no information was collected on the type of tertiary educational institution. Therefore, no differentiation between a degree from a university of applied sciences, university, or other institution was possible and a university degree was used as a reference.

5 Years of Education classification (tx28102, ts31212_g3, tf32319_g3, p731802_g3, p731852_g3, p732313_g3, t731312_g3, t731324_g3, t731362_g3, t731374_g3, t732313_g3, ts33214_g3)

Completing the derivation process, the Years of Education were gained from the given data. For this purpose, a function based on the CASMIN classification scheme was used to maintain the corresponding scale scores for the respective targets and all additionally considered persons. Generally, drawing from the categories of the CASMIN scheme, “1b” was assigned to 9, “1c” to 12, “2b” to 10, “2a” and “2c_gen” to 13, “2c_voc” to 15, “3a” to 16 and “3b” to 18 years of education. Those with neither a school-leaving nor a vocational qualification (“1a”) were assigned the residual value “-20” because having no school-leaving qualification cannot be equated to a certain number of years of education reliably.[31] Finally, those with a non-codable, system-missing, or missing by design scale score within the CASMIN classification were treated exactly the same way within the Years of Education scheme.

References

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[6] Lechert, Yvonne; Schroedter, Julia; Lüttinger, Paul (2006): Die Umsetzung der Bildungsklassifikation CASMIN für die Volkszählung 1970, die Mikrozensus-Zusatzerhebung 1971 und die Mikrozensen 1976-2004. ZUMA-Methodenbericht 2006/12.

[31] Consider, for example, migrants whose school attendance periods differ from the German compulsory one or whose certificates were not acknowledged.

Table 1: ISCED-97 target persons

		Vocational qualification						
School-leaving qualification		Not determinable, Missing	No qualification, Vocational courses (0A/1A)	Assistant's certificate, Ordinary civil service, ... (3B)	Middle civil service (3C)	Technician, Master, Higher civil service, ... (5B)	University (of applied sciences), Senior civil service (5A)	Doctorate, Habilitation (6)
	Not determinable, Missing	-55	0A/1A	3B	3C	5B	5A	6
	No qualification, Special needs school, Elementary school (0A/1A)	0A/1A	0A/1A	3B	3C	5B	5A	6
	“Hauptschule”, Vocational training (2B)	2B	2B	3B	3C	5B	5A	6
	Intermediate secondary school (2A)	2A	2A	3B	3C	5B	5A	6
	Entrance certificate university (of applied sciences) (3A)	3A	3A	4A/4B	3C	5B	5A	6

Table 2: CASMIN target persons

		Vocational qualification				
School-leaving qualification		Not determinable, Missing	No vocational qualification	Vocational specific schooling	University of applied science	University
	Not determinable, Missing, Vocational training	-55	1a	1c	3a	3b
	No qualification, Special needs school, Elementary school	1a	1a	1c	3a	3b
	“Hauptschule”	1b	1b	1c	3a	3b
	Intermediate secondary school	2b	2b	2a	3a	3b
	Entrance certificate university (of applied sciences)	2c_gen	2c_gen	2c_voc	3a	3b

Table 3: ISCED-97 partners, interviewed parental units, respective partner(s), (primary/secondary) mothers/fathers and siblings[32]

		Vocational qualification							
School-leaving qualification		Missing	Not determinable	No qualification, Vocational courses (0A/1A)	Assistant's certificate, Ordinary civil service, ... (3B)	Middle civil service (3C)	Technician, Master, Higher civil service, ... (5B)	University (of applied sciences), Senior civil service (5A)	Doctorate, Habilitation (6)
	Missing	Missing	-55	0A/1A	3B	3C	5B	5A	6
	Not determinable	-55	-55	0A/1A	3B	3C	5B	5A	6
	No qualification, Special needs school, Elementary school (0A/1A)	0A/1A	0A/1A	0A/1A	3B	3C	5B	5A	6
	"Hauptschule", Vocational training (2B)	2B	2B	2B	3B	3C	5B	5A	6
	Intermediate secondary school (2A)	2A	2A	2A	3B	3C	5B	5A	6
	Entrance certificate university (of applied sciences) (3A)	3A	3A	3A	4A	3C	5B	5A	6

[32] Missings by design "-54" can occur – by design – only simultaneously and the resulting score is, of course, also "-54" – missing by design; for simplicity this line and row was left out of the table.

Table 4: CASMIN partners, interviewed parental units, respective partner(s), (primary/secondary) mothers/fathers and siblings[33]

		Vocational qualification					
School-leaving qualification		Missing	Not determinable	No vocational qualification	Vocational specific schooling	University of applied science	University
	Missing	Missing	-55	1a	1c	3a	3b
	Not determinable	-55	-55	1a	1c	3a	3b
	No qualification, Special needs school, Elementary school	1a	1a	1a	1c	3a	3b
	"Hauptschule", Vocational training	1b	1b	1b	1c	3a	3b
	Intermediate secondary school	2b	2b	2b	2a	3a	3b
	Entrance certificate university (of applied sciences)	2c_gen	2c_gen	2c_gen	2c_voc	3a	3b

[33] Missings by design "-54" can occur – by design – only simultaneously and the resulting score is, of course, also "-54" – missing by design; for simplicity this line and row was left out of the table.