NEPS

National Educational Panel Study

Research Data

FDZ-LIfBi

Data Manual

NEPS Starting Cohort 8 – Grade 5 (2022)

Education for the World of Tomorrow

Scientific Use File Version 1.0.0

LIfBi

LEIBNIZ INSTITUTE FOR
EDUCATIONAL TRAJECTORIES

Research Data Documentation

The *NEPS Research Data Documentation Series* presents resources prepared to support the work with data from the National Educational Panel Study (NEPS).

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This data manual for Starting Cohort 8 – Grade 5 (2022) “Education for the World of Tomorrow” has been prepared by the staff of the Research Data Center at the Leibniz Institute for Educational Trajectories (Forschungsdatenzentrum, FDZ-LIfBi). It represents a major collaborative effort. The contribution of the following persons is particularly acknowledged:

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Contents

1 Introduction

1.1 About this manual

This manual facilitates your work with data of the NEPS Starting Cohort 8 – Grade 5 (2022). It serves both as a first guide for getting started with the complex data and as a reference book. The primary emphasis is on aspects such as sampling and sample development, conventions of data preparation, data structure, and merging of information. The manual is neither complete nor exhaustive, but several links to other resources are provided in the respective paragraphs. According to the cumulative release strategy – each new Scientific Use File contains the data of all previous survey waves plus the data of the currently prepared wave – this manual is regularly updated and revised for ongoing NEPS starting cohorts.

The first chapter refers to further documentation material, requirements for data access, instructions for data citation, some general rules and recommendations, and selected services provided by the FDZ-LIfBi (Forschungsdatenzentrum, Research Data Center) for NEPS data users. In the second chapter, the fundamental objectives of Starting Cohort 8 (NEPS SC8) and its sampling strategy are briefly introduced. The main part of this chapter describes the sample realization of the first panel wave including field times, realized case numbers, survey modes, and the measurement of competence domains. The general principles of Scientific Use File data-editing processes as well as the applied conventions for naming the data files and variables are introduced in the third chapter, supplemented by missing value definitions and an overview of additionally generated variables. The fourth chapter focuses on the data structure with information about the relevant data types, identifiers, and short portraits of all available datasets in the Scientific Use File. These portraits also include syntax examples for merging variables of this dataset with variables from other datasets. The last chapter addresses some specific issues that should be considered when working with data of Starting Cohort 8.

The contents of the first chapter as well as large parts of the third and fourth chapters apply to the Scientific Use Files of all NEPS starting cohorts. It is not mandatory that the examples mentioned there explicitly refer to Starting Cohort 8, but they are transferable accordingly.

1.2 Further documentation

The data manual does not address all aspects of data documentation in detail. Therefore, a comprehensive set of reports and additional materials with background information on data preparation, survey instruments, competence tests, and field work (see Figure 1) can be downloaded from our website:

→ `www.neps-data.de` > `Data and Documentation` > `Starting Cohort 8` > `Documentation`

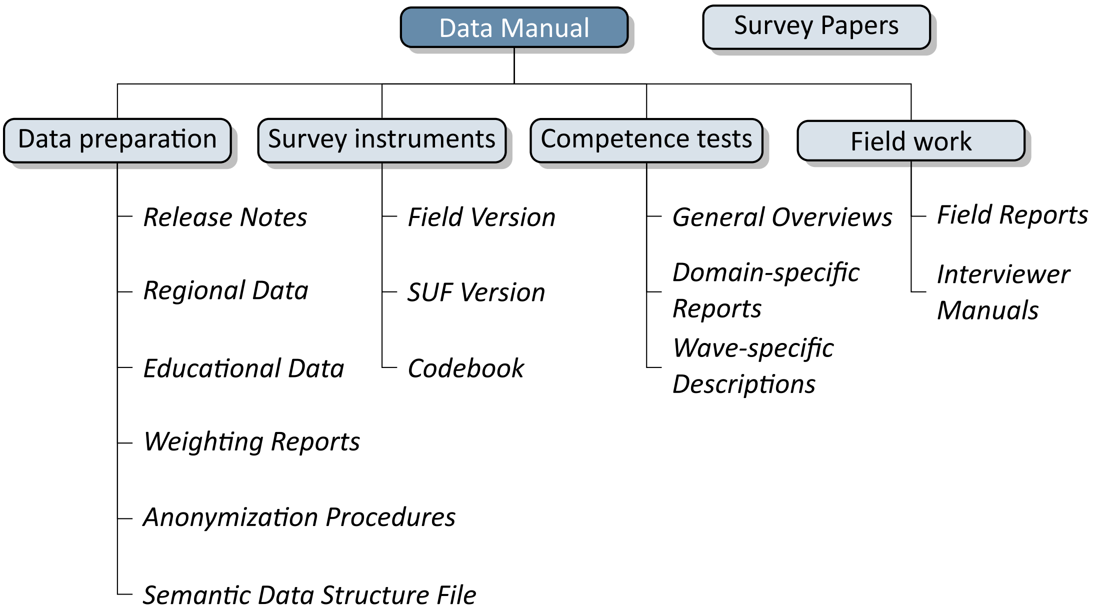


Figure 1: NEPS supplementary data documentation

Release Notes All Scientific Use Files are accompanied by release notes that log changes in the data compared to prior Scientific Use File versions and list bugs eliminated or at least known of. For the latter, short syntax corrections are usually given. Please consult these notes when working with the data. See also Section B.1 for a depiction of the current notes.

Regional Data Fine-grained regional indicators from commercial providers (microm, RegioInfas) are available in the On-site environment (*not for Starting Cohort 8*). The reports describe the regional levels covered, the content, and how to merge it to the survey data.

Educational Data The report gives an overview of the generation of the derived educational variables ISCED, CASMIN and Years of Education.

Weighting Reports These reports entail information regarding the design principles of the sampling process and the creation of weights.

Anonymization Procedures The document describes the anonymization measures carried out and provides an overview regarding the opportunity to access sensitive data.

Semantic Data Structure File This data package corresponds to the Scientific Use File but does not contain any observations (*purged datasets*). It provides all metadata including variable names, labels and answering scheme options to be used for exploring the data structure and for preparing analyses.

Survey instruments For each wave, the survey instruments are offered in the form of field versions and Scientific Use File (SUF) versions. While the field versions consist of the originally deployed instruments (in German only), the SUF versions are enriched by additional information such as variable names and value labels used in the Scientific Use File. **Please note, that the competence test booklets are not publicly available**.

Codebook The codebook lists all variables and their corresponding labels plus the basic frequencies by waves aligned with the datasets in the Scientific Use File.

Competence Tests Information about competence testing is provided in various documentations, including general overviews and wave-specific descriptions. Usually, for each domain there is a brief description of the construct with sample items as well as a description of the data and of the psychometric properties of the test.

Field Reports The field reports document the overall data-collection process conducted by the survey institute. This information about survey preparation, interviewer deployment, respondent tracking, initial contacts, incentives, and sample realization is available in German only.

Interviewer Manuals The interviewer manuals are a collection of instructions for the interviewers. They exemplify the interview process and the content of each of the questionnaire modules. They are available in German only (*not for Starting Cohort 1*).

NEPS Survey Papers Finally, there is a series of NEPS Survey Papers that address several topics of more general interest. These papers are listed for download from the LIfBi website at:

→ `www.neps-data.de` > `Publications` > `NEPS Survey Papers`

Additional documentation material might be available for this Starting Cohort. Please visit the documentation website mentioned at the beginning of this chapter for further details.

1.3 Data release strategy

NEPS data are published in the form of Scientific Use Files. They are provided free of charge to the scientific community. Each Scientific Use File consists of multiple datasets, forming a complex data structure with cross-sectional, panel and episode or spell information (see Section 4). The release of NEPS Scientific Use Files follows a cumulative strategy, i. e., the latest data release replaces all former data releases. **Therefore, it is strongly recommended to use the most current release of a Scientific Use File.**

File Format

All Scientific Use Files are provided in Stata and SPSS format with bilingual variable and value labels in German and English. In the SPSS format, there are separate data files for both languages. Data stored in Stata format contain both languages within one file; the switch is induced by the following Stata command:

```
label language [de/en]
```

Versioning and Digital Object Identifier

With each new release of a Scientific Use File, the existing data files are either extended, usually by information from a new survey wave, or updated with changes due to larger or smaller corrections. The three digits of the version number inform about the number of waves integrated in the specific Scientific Use File, the frequency of major updates, and the frequency of minor updates. The version number is part of all relevant designations: that of the Scientific Use File, its data files (see Table 3), and the respective Digitial Object Identifier.

Every release of a NEPS Scientific Use File is registered at `DataCite` and clearly labeled with a unique *Digital Object Identifier* (DOI, see Wenzig, 2012). This DOI has two main functions: On the one hand, it enables researchers to cite the used NEPS data in an easy and precise way (see Section 1.5), which is a fundamental prerequisite for any replication analysis. On the other hand, the DOI directs to a landing page with further information about the Scientific Use File and the data access options. The DOI of the current release is `doi:10.5157/NEPS:SC8:1.0.0`.

Table 1: Release history of Scientific Use Files in Starting Cohort 8

SUF Version	DOI	Date of release
1.0.0 (current)	`doi:10.5157/NEPS:SC8:1.0.0`	**2025-05-07**

1.4 Data access

Access to the NEPS data is free of charge but limited to the purpose of research and to members of the scientific community. It is granted upon the conclusion of a *Data Use Agreement*. The existence of a valid Data Use Agreement entitles to work with all NEPS Scientific Use Files, i. e., the full data portfolio is at the disposal of all persons included in the agreement.

Application for data access

- Fill in the online form for a NEPS Data Use Agreement either in German or in English. Enter a title, the duration, and a short description of the intended research project. Make sure that all project participants with NEPS data access are specified in the form and that these persons have signed the agreement. Submit one copy of the complete agreement by e-mail or mail. Further instructions and the relevant forms are provided on our website at:

  → `www.neps-data.de` > `Data Access` > `Data Use Agreements`

- After approval by the Research Data Center, each registered NEPS data user receives an individual user name and a password to log in to our website. The basic Data Use Agreement permits the download of all available Scientific Use Files from our website at:

  → `www.neps-data.de` > `Data and Documentation` > `NEPS Data Portfolio`

- There are two other modes of access to more sensitive NEPS data (see below); each demanding a Supplemental Agreement in addition to the basic Data Use Agreement.
- A separate form is available to state changes to the Data Use Agreement, such as the addition of project participants or an extension of the project duration.

Modes of data access

Three modes of accessing the NEPS Scientific Use Files are available. They are designed to support the full range of researchers' interests regarding data utility while complying with the national and international standards of confidentiality protection. Each mode corresponds to a Scientific Use File version that is different in terms of accessibility of sensitive information.

- *Download* from the website = highest level of anonymization
- *RemoteNEPS* as browser-based remote desktop access = medium level of anonymization
- *On-site* access at secure working stations at LIfBi = lowest level of anonymization

While working with RemoteNEPS requires a biometrical authentication and internet access, the On-site use of NEPS data requires a guest stay at the LIfBi in Bamberg. More details about the access modes can be found at:

→ `www.neps-data.de` > `Data Access`

Sensitive information

The *Download* version of a Scientific Use File contains the least amount of information. Indicators of a certain sensitivity are modified in the Download data, such as aggregated categories for countries of citizenship or languages of origin. A few datasets and variables are exclusively accessible in the *On-site* version of a Scientific Use File, e. g., fine-grained regional indicators or open text entries. For more details see:

→ `www.neps-data.de` > `Data Access` > `Sensitive Information`

This concept of *nested data dissemination* translates into an onion-shaped model of datasets. The most sensitive On-site level represents the outer layer with the Remote and Download levels being subsets of these data. That is, any data contained within a less sensitive access level are also included in the corresponding higher level(s). A detailed list of variables offered at the different levels together with notes on the generation of the three data versions can be found for each release of a Scientific Use File in the respective report on “Anonymization Procedures”.

1.5 Publications with NEPS data

Referencing the use of data from the National Educational Panel Study is essential for a good scientific practice as well as for revealing the scientific value of this study. The following citation rules apply to all publications based on NEPS data of Starting Cohort 8.

It is obligatory to acknowledge the NEPS study in general and to specify the version of the data used by citing its DOI as follows:

> NEPS Network. (2025). *National Educational Panel Study, Scientific Use File of Starting Cohort 8 – Grade 5 (2022)*. Leibniz Institute for Educational Trajectories (LIfBi), Bamberg. https://doi.org/10.5157/NEPS:SC8:1.0.0

In addition, the NEPS study must be referenced at an appropriate point within the publication:

> This paper uses data from the National Educational Panel Study (NEPS; see Blossfeld and Roßbach, 2019). The NEPS is carried out by the Leibniz Institute for Educational Trajectories (LIfBi, Germany) in cooperation with a nationwide network.

Finally, the reference article must be listed in the bibliography:

> Blossfeld, H.-P., & Roßbach, H.-G. (Eds.). (2019). *Education as a lifelong process: The German National Educational Panel Study (NEPS). Edition ZfE* (2nd ed.). Springer VS. https://doi.org/10.1007/978-3-658-23162-0

Authors of any kind of publications based on the NEPS data are requested to notify the FDZ-LIfBi about their articles by sending an e-mail with the bibliographic details to `fdz@lifbi.de`. All known publications are listed in the NEPS Bibliography on our website at:

→ `www.neps-data.de` > `Publications`

To refer to any of the **documentation material** published in the *NEPS Research Data Documentation Series* (e. g., this manual), please make use of the following citation templates:

> FDZ-LIfBi. (2025). *Data Manual NEPS Starting Cohort 8 – Grade 5 (2022), Education for the World of Tomorrow, Scientific Use File Version 1.0.0*. Bamberg, Germany, Leibniz Institute for Educational Trajectories, National Educational Panel Study.

If no author is given, please take a universal *NEPS Network* instead:

> NEPS Network. (2025). *Starting Cohort 8 – Grade 5 (2022), Wave 1, Questionnaires (SUF Version 1.0.0)*. Bamberg, Germany, Leibniz Institute for Educational Trajectories, National Educational Panel Study.

If a document is not part of this series, please cite the author and title according to the following example of a field report by one of the survey institutes:

Hellrung, M., Hillen, P., Hugk, N., Meyer-Everdt, M., Sievers, U., & Tusch, S. (2025). *Feld- und Methodenbericht der IEA Hamburg zur NEPS-Teilstudie A104*. Hamburg, Germany: IEA.

1.6 Rules and recommendations

Working with NEPS data is bound to a couple of rules that are defined in the Data Use Agreement. Each data user has to confirm these rules through their signature on the agreement. The already mentioned obligation to cite the NEPS study and to indicate any kind of publication resulting from the use of NEPS data (see Section 1.5) are just two examples. The major part of rules refers to issues of data privacy and the requirements of careful data handling.

Rules

- *Avoidance of re-identification:* Any action aimed at and suitable for re-identifying persons, households, or institutions is strictly forbidden. This also includes the combination of NEPS data with other data that allow for such a re-identification. In case of any accidental re-identification, the Research Data Center has to be informed immediately and all individual data gained therefrom have to be kept secret.
- *Avoidance of data disclosure:* NEPS data are exclusively provided on the basis of a valid Data Use Agreement – for a defined purpose (research project) and to a defined group of persons (data recipient and further project members that are mentioned by name in the agreement). Any use for commercial or other economic purposes is not permitted just as any transfer of the data to third parties. Please handle the provided NEPS data with strict confidentiality!
- *Regulations on using the Federal State label:* For NEPS data collected in the context of schools or higher education institutions, it is strictly prohibited to use Federal State-related information, whether directly or indirectly contained in the data for analyses that aim to (a) make direct comparisons between German Federal States (*Bundesländer*), (b) draw specific conclusions about an individual Federal State, and (c) to reconstruct the Federal State affiliation of individuals, households, or institutions. Any kind of ranking between the Federal States based on NEPS data is not permitted (see Section 1.7).

Please note that a violation of these rules may lead to severe penalties as stated in the NEPS Data Use Agreement. If there is any doubt or question regarding the given regulations, please contact the Research Data Center (see Section 1.9). The same obligation applies in case of encountering any issues concerning data quality or any security leaks with regard to NEPS data protection.

Recommendations

In addition to the aforementioned rules, there are some recommendations for using the NEPS data:

- *As a matter of course:* Always be critical when working with empirical data. Although a big effort is being made to ensure the integrity of the provided research data we cannot guarantee absolute correctness. Notices on problems or errors in the datasets are welcome at any time at the Research Data Center.
- *Enhanced understanding of the data:* Consult the documentation and survey instruments before starting the analyses. The work with complex data requires a precise idea of how the information were collected and processed. All relevant material is available online.
- *Facilitated handling of the data:* Use the tools that are offered. Several user services are provided to support NEPS data analyses – from specific Stata commands (e. g., for an easy recoding of missing values) to a meta search engine (e. g., for an interactive exploration of all instruments) and an online discussion forum (e. g., for asking specific questions). These tools are also available online, see Section 1.8 for more details.

1.7 On using the Federal State label *(Bundeslandkennung)*

In concurrence with the regulations of the Research Data Center at the Institute for Educational Quality Improvement (Institut zur Qualitätsentwicklung im Bildungswesen, IQB), using the Federal State label in conjunction with the NEPS data collected in connection with schools or higher education institutions is permitted in the context of exploring scientific research questions, if it is exclusively used for:

- control purposes in order to incorporate it as a covariate in the planned analysis; the identification of individual Federal States in the displayed results is not permitted
- incorporating contextual characteristics or other third-party variables; the identification of individual Federal States in the displayed results is not permitted
- comparing aggregated groups of Federal States where at least two states are combined to form a single meaningful group with regard to substantive issues; the identification of individual Federal States in the displayed results is not permitted
- for sample descriptions (e. g., the distribution of participants by state and by different types of schools within states)

When using NEPS data collected in connection with schools or higher education institutions, it is **not allowed** to use Federal State-related information directly or indirectly contained in the data for analyses aiming at a direct Federal State comparison, direct conclusions to be drawn about a Federal State, or a reconstruction of the concrete Federal State affiliation of persons, households, and institutions.

The Federal State label in the starting cohorts of schools and higher education institutions is provided to the scientific community only via Remote access (*RemoteNEPS*) and guest working stations at the LIfBi in Bamberg (*On-site*). The respective analysis results are reviewed by staff of the Research Data Center before being passed on electronically to the researcher in a password-protected environment. The restrictions concerning the use of the Federal State label do not apply to data collected in a nonschool context and/or in Federal State-specific educational reform studies.

1.8 User services

In addition to a comprehensive data documentation, there are several user services to support researchers working with the NEPS data. First and foremost, the Research Data Center maintains a regularly updated and enhanced website with detailed information on all Scientific Use Files, a complete list of registered NEPS analysis projects, a bibliography with all known publications based on NEPS data, a reference to several NEPS-related events, and a LIfBi data newsletter. All subsequently introduced services and tools can be reached via this website:

→ `www.neps-data.de` > `NEPS`

Online Forum

The so-called *Forum4MICA – Making Information Commonly Available* is an open discussion platform for data users as well as for persons who are just searching for relevant information. The forum is joined by various Research Data Centers with their data collections, including the FDZ-LIfBi with the NEPS data. It offers the opportunity to directly exchange with NEPS staff members and with other researchers in a transparent dialogue. In this way, the forum grows into a knowledge archive with practical solutions to numerous problems and questions. We recommend browsing the content first when struggling with NEPS issues or whenever help is needed with specific data matters. If there is no solution available, please take the opportunity to share your question by posting it in the forum. Active participation is highly encouraged and requires no more than a one-time registration. The entire NEPS user community (and beyond) will benefit from a broad participation. You can find the forum at:

→ `https://forum.lifbi.de`

Variable Search

The *Variable Search* facilitates an interactive and quick full text search through all instruments of released NEPS surveys, including competence variables. The tool is particularly suitable for getting a first idea of the availability of constructs, items, and variables in the datasets. It is based on both keyword search with several filtering options and hierarchical topic search. The *Variable Search* offers some helpful functions such as displaying the occurence of each selected variable in the NEPS starting cohorts, its answering scheme, relevant references, and more. As a web application the service relies on the most up-to-date information; any correction in the metadata is thus instantly visible. Start the tool here:

→ `www.neps-data.de` > `Variable Search`

NEPStools

NEPStools is a free to use collection of Stata commands that is created and supplied by the Research Data Center at LIfBi. The package includes some programs ("ado files") that make NEPS data handling easier. As an example, the `nepsmiss` command automatically recodes all of the numeric missing values (-97, -98, etc.) into Stata's "Extended Missings" (.a, .b, etc.) with correctly recoded value labels. Another example ist the `infoquery` command that displays additional attributes of the variable such as the question text and the initial variable name in the instrument. *NEPStools* can be installed from our repository through Stata's built-in installation mechanism:

```
net install nepstools, from(http://nocrypt.neps-data.de/stata)
```

A description of the programs and further information are given on the website at:

→ www.neps-data.de > Overview and Assistance > Data Tools for Stata

Data trainings

The Research Data Center offers a series of regular NEPS data trainings, conducted as online courses. Participation is free of charge. The courses consist of different modules, whereby single modules can be attended separately. While the *basic modules* provide knowledge on the general framework of the NEPS study and on how to access and work with the NEPS data plus documentation, the *advanced modules* address selected topics such as the handling of competence data, episode data, linked NEPS-ADIAB data, weights, etc. A schedule of current training courses together with information for registration can be found at our website:

→ www.neps-data.de > Data Trainings

1.9 Contacting the Research Data Center

The Research Data Center at the Leibniz Institute for Educational Trajectories (FDZ-LIfBi) accounts for large parts of the NEPS data preparation and documentation, for the data dissemination, and for the user support including individual consultation. We appreciate any feedback in order to further improve our services. This particularly applies to this manual as the guiding document to facilitate your work with the data of NEPS Starting Cohort 8.

Please contact us with your questions, comments, requests, and suggestions.

E-mail:	fdz@lifbi.de
Web:	→ www.neps-data.de > Research Data Center
Forum:	→ www.neps-data.de > Online Forum

2 Sampling and Survey Overview

2.1 Education for the world of tomorrow

The lower secondary level plays a connecting role between elementary school and the general or vocational upper secondary level. This educational stage is particularly associated with questions about the reasons for choosing a certain type of school or school track (*Schulzweig*), about transitions to other school types, about conditions for successful learning or competence acquisition, about consequences of grade retentions and many other processes on the various paths through lower secondary level and into the transition to upper secondary level.

With the study *Education for the World of Tomorrow*, the National Educational Panel Study (NEPS) has launched a second cohort in lower secondary level from grade 5 onwards, twelve years after Starting Cohort 3. The rationale of this cohort succession is on looking at the effects of social and educational policy changes over the last decade on everyday school life. The new NEPS Starting Cohort 8 focuses on topics such as:

- the use of digital media in education and in students' everyday lives
- the digital competencies and the role of social media
- the relevance of political participation and the involvement in civic engagement
- the changes in the school system and integration of increasingly diverse groups of students

The general scope of this study still covers the students' development in various competence domains as well as the diverse educational processes, educational decisions and returns to education over the course of secondary school level in combination with a range of contextual aspects (e.g. institutional and family factors). This opens up a highly interesting comparative perspective on Starting Cohort 3. At the same time, the data of Starting Cohort 8 offer empirical information for new research approaches. In addition to the thematic focuses mentioned above, the survey design enables, for example, a more specific view on the school as learning context (by including the entire teaching staff in the survey) and on the level of reading and math competences of the participating students (by linking the NEPS measures to the IQB Bildungstrends based on identical tests and identical schools).

The aim of this panel study is to establish and provide an empirical basis for a better understanding of the challenges and opportunities of education for the world of tomorrow. For this purpose, the NEPS Starting Cohort 8 follows a sample of representatively selected students who attend regular and special schools and are willing to take part in annual surveys and competence tests. Parallel to this, surveys are conducted with parents, teachers and school principals or members of the school management team.

2.2 Sampling strategy

The target population of the Starting Cohort 8 includes students of the 5th grade in German schools offering lower secondary education in the school year 2022/2023.[1] Access to this population of students was gained through the schools in which they are enrolled. The initial sample was drawn using a stratified procedure in which schools were selected at random. Within the selected schools, all fifth-grade classes were invited to participate in the study, unless the schools made their own selection of classes.

In the first stage, the selection was based on a complete list of all regular schools in Germany as primary sampling units (PSU). This school frame contained only schools of the general education system (e. g., no vocational schools). It was compiled using up-to-date school registers for the school year 2020/2021 that were available to the *Statistical Offices* of all 16 federal states. In order to adequately reflect the diversity of the German federal state-specific school systems, all schools in the frame were classified according to their type or track.[2] The school type or track (*Gymnasien, Realschulen, Hauptschulen, Schulen mit mehreren Bildungsgängen, Gesamtschulen, Schulformunabhängige Orientierungsstufe, Förderschulen*) served as an explicit stratification criterion. Other characteristics were considered for implicit stratification:

- federal state
- degree of urbanization or regional classification
- sponsorship (public vs private)

From the total list of 11,402 schools or school tracks (excluding special schools with a focus other than learning and schools with a non-German language of origin in Hesse), 575 original schools were selected for grade 5, of which 450 were regular schools and 125 were special schools with a focus on special educational needs in the area of learning. In addition, up to nine replacement schools with identical characteristics in terms of federal state, sponsorship and degree of urbanization as well as similar class sizes were drawn for each selected school track. In sum, the gross sample included 5,068 schools, thereof 4,478 regular and 590 special schools.

Participation in the study was voluntary for both the selected schools and the students. Despite the support of the *Ministries of Education* in several federal states, recruiting schools proved to be a particular challenge. If a school of the original sample refused to take part in the NEPS, the loss was compensated for by one of the structurally equivalent replacement institutions drawn in addition to that school. Even with the replacement schools, only 270 schools (thereof 29

[1] In Berlin and Brandenburg, elementary schools were also recruited and included in the survey due to the specific transition regulations in the school system there.

[2] An individual school can be assigned to a certain type of school only; however, it can also offer different tracks (*Schulzweige*). The sampling was not based on institutions, but on school tracks. Accordingly, schools with several tracks were represented several times in the sampling frame.

special schools) actually agreed to take part in the study, which corresponds to a response rate of 5 percent at the institutional level and 47 percent of the originally planned school sample.[3]

In the second stage, the survey institute asked the recruited schools for information on all classes in grade 5, including the number of students per class. All classes were eligible for participation. If a school made a selection of fifth grade classes, only these classes were considered. In the participating classes, all students were asked to be part of the panel study. Thus, the students constitute the secondary sampling units (SSU).

In order to be part of the study, one legal guardian of the child had to give written consent. Only students for whom a fully completed consent form was available on the day of the survey were allowed to participate. The individual forms were first distributed to the students via the schools and collected again there. Out of a total of 20,535 registered students in the selected 5th grade classes (gross sample), 6,141 students (thereof 241 from special schools) were willing to take part in the NEPS study. These students were in possession of the required parental declarations of consent. Information is available for 5,763 out of these 6,141 students for the first survey wave, i.e. they took the tests and/or completed the questionnaire. This represents a participation rate of 93.8 percent. Students who could not be reached at school on the day of the survey (regular test day or alternative test day), e. g. because they were ill, received a separate self-administered questionnaire via computer-assisted web interview (CAWI).

The sampling design and its consequences for the derivation of sampling weights are also described in the *NEPS Technical Report for Weighting* (see Konrad et al., 2025). Further remarks on the recruiting process are given in the PAPI/CASI field report for the first survey wave among students in schools (in German only). Both documents are available on our website at:

→ `www.neps-data.de` > `Data and Documentation` > `Starting Cohort 8` > `Documentation`

Context persons

Target persons of Starting Cohort 8 are students, beginning with the first survey in grade 5. To collect information about the institutional learning environment as well, supplementary contextual data were collected from the entire teaching staff, the class teachers as well as the German and mathematics teachers of the participating classes in particular, plus the school principals.[4] These additional surveys were conducted using computer-assisted web interviews (CAWI) to be completed separately from the students' survey. Participation was also voluntary for the context persons. The *teachers* worked on a general questionnaire module plus all other modules that were individually relevant to them in their respective roles, e. g. as German and class teacher. The *school principals or members of the school management team* answered a specific

[3] In order to be able to compare the competencies of the students participating in the NEPS study at a later date (at the end of lower secondary level) with the competency data collected from grade 9 students as part of the IQB Bildungstrends study (IQB-BT, see https://www.iqb.hu-berlin.de/bt), the school sample also included schools that had participated in the IQB-BT with grade 9 in spring 2022. The gross sample contained 1,080 schools across the different tracks that had participated in the IQB Bildungstrends study with grade 9 in spring 2022. Of these 1,080 schools, 83 agreed to be part of the NEPS study.

[4] The invitation of the entire teaching staff of the participating schools to take part in the survey represents a major change in the study design compared the Starting Cohort 3 – Grade 5 (2010).

module with questions on school-related issues. Please note, that this dataset (xInstitution) is only available in the RemoteNEPS and On-site version of the Scientific Use File.

The family or home context of the target persons was captured by interviews with one legal guardian. Whenever possible, the biological or social parent who was most familiar with the child's school matters was invited to participate. In the vast majority of cases, this was the biological mother (approx. 80 percent in the first wave). The *parent* interviews of the first survey wave were conducted in the form of computer-assisted telephone interviews (CATI). Of course, participation in these interviews was also voluntary. The corresponding consent was obtained separately from the agreement to the child's participation in the study. In terms of content, the parent survey focuses primarily on educational aspects and the student's school history. It also includes questions on parental support for the child, the child's health, the satisfaction with school, the use of language in the family, the household equipment, as well as on various sociodemographic characteristics, etc.

A detailed picture of the survey units, the realized case numbers, the survey modes and the responsible survey institutes is provided in Section 2.4.

2.3 Competence measures

The collection and provision of data on the development of competencies and skills throughout the life course is a key element of the NEPS. Competence measurements are carried out across different waves in all NEPS starting cohorts covering *domain-general* and *domain-specific cognitive competencies* as well as *metacompetencies* and – for some cohorts – *stage-specific competencies*.

Data from the competence tests pass through an editing process before they get integrated into the Scientific Use File. This data preparation enables users to work with scored items and generated test scores such as the sum or mean of correct answers. Detailed descriptions on how these scores were estimated can be found in separate Technical Reports for the respective competence domains, available on the corresponding data documentation website (see Section 1.2). The individual and generated scores for students at *regular schools* are compiled in the dataset xTargetCompetencies.

The values for the tests that were administered at *special schools* are provided in a separate dataset called xTargetSpecialNeedsCompetencies. Besides a shortened version of the questionnaire, students at these schools also received an adjusted test program. It includes adapted competence tests that are tailored to the special requirements of the children there, as well as competence domains that are not applied in regular schools. The data documentation contains Technical Reports that provide information on the analytical options for competence estimates derived from these tests, as well as on their comparability between regular und special schools.

All competence data are

structured in the so-called WIDE format, that is, all responses of a single respondent are placed in one row of the data matrix (see Section 4). As a consequence, variable names for competence scores follow a specific nomenclature. These conventions not only allow for the identification of the respective domain, the target group, the testing modus, and the kind of scoring, they also indicate the repeated administration of a test item in a different wave or starting cohort (see Section 3.2.2).

Table 2 shows the schedule of competence measures in Starting Cohort 8 with domains by waves and test modes. It should be noted that the table reflects the current planning status for testing the various competence domains in future survey waves. However, these plans may change over time. A list of all possible competence domains together with the respective abbreviation can be found in Table 5.

- General: The non-colored boxes with capital letters refer to tests conducted with students in regular schools; the blue highlighted boxes indicate tests administered to students in special schools.
- General: Following several competence tests (gk, vo, sc, nr/nt, ic, dc, cl), the target persons were asked to evaluate their own test performance ("Procedural Metacognition", mp).
- Wave 1: The test used in wave 1 to measure reading competence (re) in special schools can be used for comparative analyses with data from regular schools in Starting Cohort 8 (see Gnambs, 2025a and Gnambs, 2025b).
- Wave 1: The tests for assessing verbal and non-verbal reasoning (vi, ni) were administered only in special schools and not in regular schools (see Gnambs, 2025c). The same tests were already applied in Starting Cohort 3 among students at special schools and can therefore be used for cross-cohort analyses.
- Wave 1 and 5: There is a randomized allocation of IQB Bildungstrend tests on reading and mathematics competence to a split sample (50% rb + 50% mb). In wave 5, the same domain will be administered as in wave 1.
- Wave 2: The L1-Test for Russian and Turkish language is applied to target persons of a corresponding migration background only.

Table 2: Schedule of competence tests P = Paper-Based Test (proctored), C = Computer-Based Test (proctored). Tests inside a blue box are administered to students in special schools.

		2022/23	2023/24	2024/25	2025/26	2026/27
		Wave 1	**Wave 2**	**Wave 3**	**Wave 4**	**Wave 5**
		Grade 5	Grade 6	Grade 7	Grade	Grade 9
Domain-General Competencies						
DGCF: Cognitive Basic Skills	`dg`	—	—	C C	—	C C
General Knowledge	`gk`	—	C C	—	—	—
Verbal Reasoning	`vi`	P	—	—	C	—
Nonverbal Reasoning	`ni`	P	—	—	C	—
Domain-Specific Competencies						
Reading Competence	`re`	P P	—	C C	—	C C
Reading Competence (IQB-BT)	`rb`	P	—	—	—	P
Reading Speed	`rs`	—	—	C C	—	C C
Vocabulary: LC at Word Level	`vo`	—	C C	—	—	—
Mathematical Competence	`ma`	P	—	C	—	C
Mathematical Competence (IQB-BT)	`mb`	P	—	—	—	P
Scientific Competence	`sc`	—	—	—	C	—
Native Language Russian/Turkish: LC	`nr/nt`	—	C	—	—	—
Metacompetencies						
ICT Literacy	`ic`	—	C	—	C	—
Digital Competence	`dc`	—	C C	—	C C	—
Civic Literacy	`cl`	—	—	C	—	—

2.4 Survey overview and sample development

This section informs about the progress of the Starting Cohort 8 sample. For each survey wave in the current Scientific Use File, there is a short characterization in terms of field time, groups of respondents, number of realized cases, survey modes, and the survey institute(s) responsible for collecting the data. A more detailed insight into all aspects of the field work can be found in the wave-specific *Field Reports*, which are available on the website (in German only) as part of the data documentation.

→ `www.neps-data.de` > `Data and Documentation` > `Starting Cohort 8` > `Documentation`

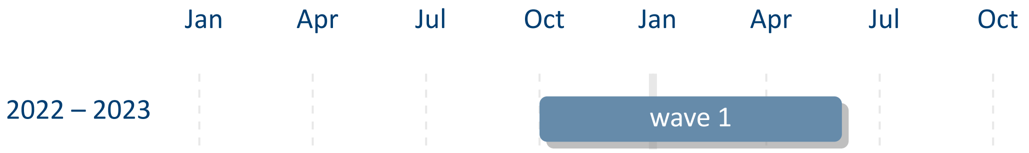
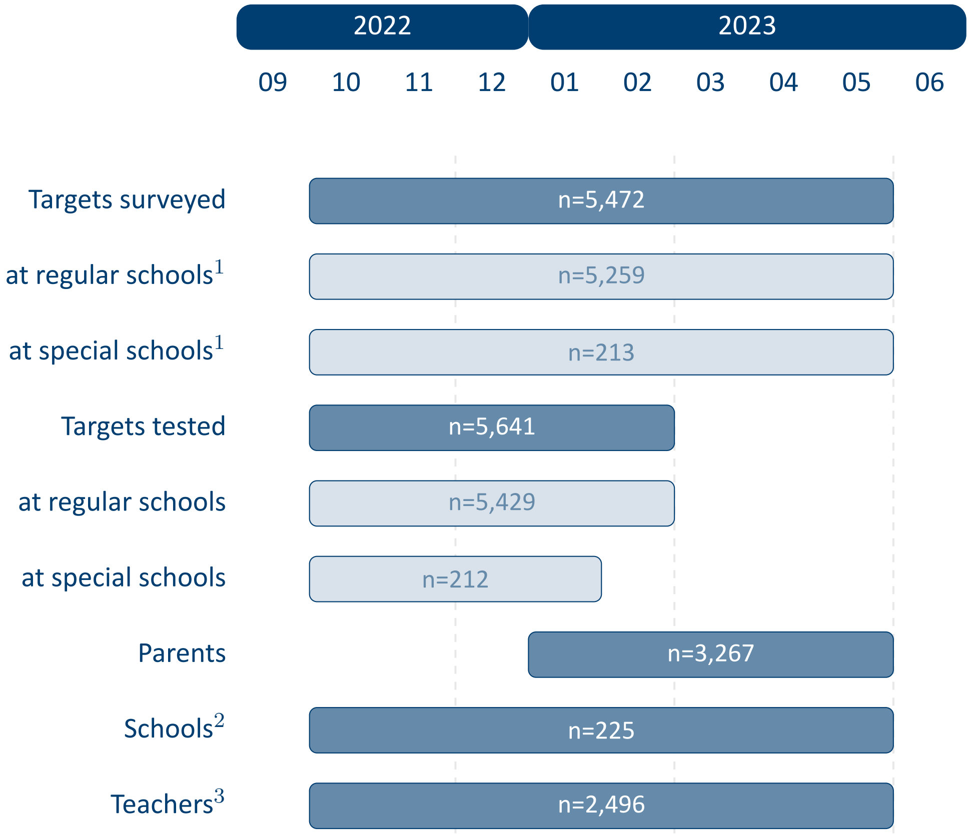


Figure 2: Panel progress of Starting Cohort 8

2.4.1 Wave 1: 2022/2023



[1] N=96 students could not reached at school for the survey, but answered the questionnaire online via CAWI (N=95 from regular schools, N=1 from special school).

[2] N=225 is the number of schools for which responses are available from the principal or school management. Please note that for some schools, several members of the school management have answered the corresponding questionnaire module.

[3] A teacher appears several times in the `Course` datasets if they have indicated responsibility as a class, German or math teacher for more than one NEPS class and have answered the corresponding modules accordingly.

Figure 3: Field times and realized case numbers in wave 1

- **Target persons** 5th graders at panel start 2022/23
  - *Grade 5 students at regular schools*

    Sample Stratified cluster sampling (see Section 2.2):
    Size-proportional random selection of regular schools at lower secondary level (and also at elementary level in Berlin and Brandenburg) with stratification regarding school track, federal state, degree of urbanization, and sponsorship.
    Full survey of 5th grade classes in schools. If requested, a selection of classes in 5th grade was made by the school. All students of the participating classes were invited to the survey.

    Modus Computer-assisted self-interviewing questionnaires (CASI) + Written competence tests (PAPI) completed in class context at school; Computer-assisted web interviewing questionnaire (CAWI) for students who could not be reached at school on the days of the survey

    Testing Reading + Reading (IQB-BT), Mathematics + Mathematics (IQB-BT)
  - *Grade 5 students at special schools*

    Sample & Modus Procedures analogous to students at regular schools

    Testing Verbal Reasoning, Nonverbal Reasoning, Reading
- **Context persons**
  - *Parents*

    Sample One legal guardian per target child = biological or social parent

    Modus Computer-assisted telephone interviews (CATI)
  - *Teachers*

    Sample Teaching staff of all schools with participating classes + class teachers of the target children and their teachers for German and mathematics

    Modus Computer-assisted web interviewing questionnaire (CAWI)
  - *School principals*

    Sample Principals or school management of all schools with participating classes

    Modus Computer-assisted web interviewing questionnaire (CAWI)
- **Data collection**
  - *Responsible for conducting the survey*

    CASI/PAPI students at school IEA DPC – Data Processing and Research Center, Hamburg

    CAWI school staff + students not reached at school LIfBi – Surveytechnology, Bamberg

    CATI parents infas – Institute for Applied Social Sciences, Bonn

3 General Conventions

The compilation of the NEPS Scientific Use Files follows two general paradigms of preparing or editing the source data (i. e., the data that is delivered by the survey agencies to the LIfBi Research Data Center). There may be exceptions to these principles, which are explicitly noted in the respective documentation materials.

1. **The first paradigm is that of unaltered data.** Wherever possible, the content of the original data is neither changed nor modified for the Scientific Use File. This paradigm is the basis for preserving the full research potential of the data collected. Therefore, no corrections are made during data preparation in order to "establish" any content validity. This means that the Scientific Use File may contain implausible values unless appropriate checks were already implemented in the survey instrument. Only in rare cases, in which the responsible developers of a variable request the removal of clearly implausible information in the data, these values are replaced by the special missing code "implausible value removed" (-52, see Table 6). The only systematic exception to this paradigm concerns the recoding of open-ended responses that can be subsequently assigned to a closed response category for the respective question (see Section 3.4 for details). The NEPS Scientific Use Files are provided with a special dataset `EditionBackups` that contains backup information for all content that has been modified by such recoding procedures (see Section 4.5.2 for details).
2. **The second paradigm is to integrate the data as much as possible without compromising the usability of the Scientific Use File.** For this purpose, the original data – some of which comprise over a hundred individual datasets – are combined into a few dozen panel and episode datasets (see Section 4.3 and Section 4.4 for details). This strategy is based on the assumption that it is far more convenient for the vast majority of data users to reduce already integrated data for a specific analysis than to correctly merge the information relevant for the analysis from scattered source data themselves.

There are additional conventions for the data structure of all NEPS Scientific Use Files. The aim of this overall structuring is to ensure a maximum of consistency between the data of all NEPS cohorts. Thus, a researcher who is familiar with the data logic of a particular cohort should be able to immediately recognize this structure when starting to work with data from another cohort. The conventions described in the following sections apply equally to Starting Cohort 8, although some of the examples refer to other NEPS cohorts.

3.1 File names

The naming of the data files in the NEPS Scientific Use Files is determined by a few rules that are summarized in Table 3. The four different elements of a dataset name are each separated by an underscore (_).

Table 3: Naming conventions for NEPS data files

Element	Definition
`SC[1-8]`	**Indicator for the starting cohort and launch year of the panel** 1 = Newborns (2012) 2 = Kindergarten (2011) 3 = Fifth-grade students (2010) 4 = Ninth-grade students (2010) 5 = First-year university students (2010) 6 = Adults (2007) 8 = Fifth-grade students (2022)
`[filename]`	**Meaning of the file name** *Prefix*: `x` = cross-sectional file; `sp` = spell file; `p` = panel file *Keyword*: indicates the content of the file (e. g., `pTarget` contains panel data with regard to the target persons; `spSchool` contains spell data from the school history) File names of generated datasets do not have a prefix and always start with a capital letter (e. g., `CohortProfile`, `Weights...`)

`[D,R,O]`	**Indicator for the confidentiality level**
	D = Download version
	R = Remote access version
	O = On-site access version

`[#]-[#]-[#]`	**Indicator for the release version** *First digit*: the main release number is incremented with every further survey wave available; e. g., the first digit “10” implies that data of the first ten waves are included in the Scientific Use File *Second digit*: the major update number is incremented with every bigger change to the Scientific Use File; major updates affect the data structure (updating of analysis syntax may be necessary) *Third digit*: the minor update number is incremented with every smaller change to the Scientific Use File; minor updates affect the content of cells or labels (syntax updating not necessary)

For instance, `SC8_CohortProfile_D_1.0.0.dta` refers to the generated *CohortProfile* dataset of *Starting Cohort 8* in its *Download* version of the Scientific Use File release *1.0.0*.

3.2 Variables

The naming conventions for variables in NEPS Scientific Use Files aim to ensure maximum consistency both between the panel waves and between the starting cohorts. The names also refer to different characteristics and thus allow the data user an orientation regarding the contents of the variables. The principles of these naming conventions are exemplified in Figure 4. It has to be noted that a separate nomenclature is used for variables from competence measurements.

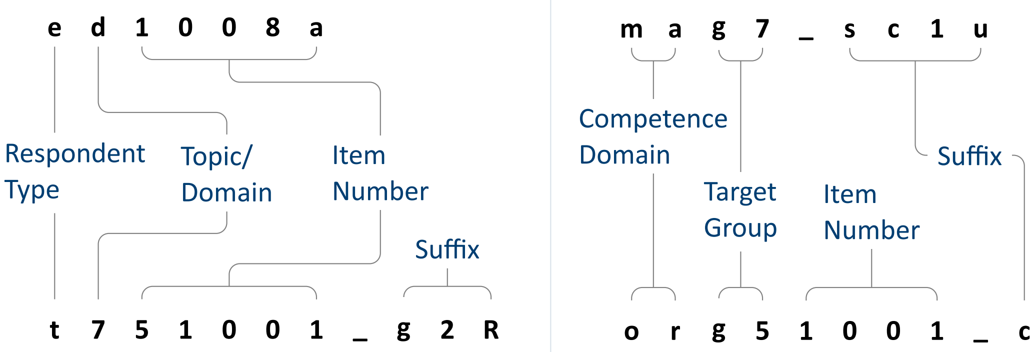


Figure 4: General variable naming (left) and competence variable naming (right)

3.2.1 Conventions for general variable naming

A variable name consists of up to four elements: the respondent type, the domain of information, an item number, and an optional suffix providing further information.

Table 4: Conventions for variable names

Digit	Description
1	**Respondent type** Indicator to which group of respondents the variable refers; note that variables related to the target person start with t even if the target person was not the actual informant (e. g., generated variables, list data from schools/kindergartens) t = Target person p = Parent/legal guardian of target person c = Cohabiting partner of the target child's parent e = Educator/childminder/teacher h = Head/manager of institution (information about school/kindergarten)

(...)

Table 4: (continued)

Digit	Description
2	**Topic/domain** Indicator to which theoretical dimension or educational stage the variable refers 1 = Competence development 2 = Learning environments 3 = Educational decisions 4 = Migration background 5 = Returns to education 6 = Interest, self-concept and motivation 7 = Socio-demographic information a = Newborns and early childhood education b = From kindergarten to elementary school c = From elementary school to lower secondary school d = From lower to upper secondary school e = From upper secondary school to higher ed./occ. training/labor market f = From vocational training to the labor market g = From higher education to the labor market h = Adult education and lifelong learning m = Corona variables s = Basic program x = Generated variables
3–7	**Item number** Indicator for the item number which typically consists of four numeric characters plus one alphanumeric character
8–11	**Suffixes** (optional, see below) Indicator for several types of variables; separated from the previous characters by an underscore

Suffixes

- *Generated variables:* The _g# suffix indicates a generated variable. Since scale indices are generated by a set of other variables, they are also identified by a _g# suffix. Note that scale indices are named after the first of the set of variables from which they were generated. In this case, numbering is only relevant if the first variable is identical for several scale indices. The number after _g is in most cases a simple enumerator (e. g., _g1). However, there are three types of generated variables that assign specific meanings to digits, namely regional classifications, occupational variables, and education variables.

The **regional classifications** are based on the Nomenclature of Territorial Units for Statistics (NUTS) and refer to units within Germany:

- g1: Indicator for East or West Germany
- g2: NUTS level 1 (federal state/Bundesland)
- g3: NUTS level 2 (government region/Regierungsbezirk)
- g4: NUTS level 3 (district/Kreis)

Generated variables for **occupation and prestige indices** are (see also Section 3.4):

- g1: KldB 1988 (German Classification of Occupations 1988)
- g2: KldB 2010 (German Classification of Occupations 2010)
- g3: ISCO-88 (International Standard Classification of Occupations 1988)
- g4: ISCO-08 (International Standard Classification of Occupations 2008)
- g5: ISEI-88 (International Socio-Economic Index of Occupational Status 1988)
- g6: SIOPS-88 (Standard International Occupational Prestige Scale 1988)
- g7: MPS (Magnitude Prestige Scale)
- g8: EGP (Erikson, Goldthorpe, and Portocarero's class categories)
- g9: BLK (Blossfeld's Occupational Classification)
- g14: ISEI-08 (International Socio-Economic Index of Occupational Status 2008)
- g15: CAMSIS (Social Interaction and Stratification Scale)
- g16: SIOPS-08 (Standard International Occupational Prestige Scale 2008)

Generated variables for the **classification of highest educational qualification** are:

- g1: ISCED-97 (Int. Standard Classification of Education 1997, *not in Starting Cohort 8*)
- g2: CASMIN (Comparative Analysis of Social Mobility in Industrial Nations)
- g3: Years of Education (derived from CASMIN)
- g4: ISCED-2011 (International Standard Classification of Education 2011)

- *Versions of variables:* If question formulations, interviewer instructions, etc. change between panel waves to such an extent that sufficient meaning equivalence is no longer guaranteed, the answers to these questions are stored in different versions of a variable. The data for the latest and most current version of a question are provided under the variable name without any version suffix. Previous item versions are identified by `_v1` for the data before the question was modified for the first time, `_v2` for the data before the question was modified for a second time, and so on.

- *Harmonized variables:* The suffix _ha indicates a harmonized variable in which common information from different versions of a variable is integrated. This is often done by aggregating detailed value characteristics into common superordinate categories. In other words, a harmonized variable reflects the lowest common denominator of information from a variable and its version(s).
- *Wide format variables:* The _w# suffix indicates variables that are stored in wide format. **Note that this suffix does not necessarily imply a wave logic.** The presence of a set of variables _w1, _w2, …, _w10 may mean that there are up to 10 values for this variable per person or episode. This is the case, for example, if the corresponding item in the survey instrument was repeatedly measured in a loop. Another example concerns the date of the competence measurement within a survey wave if it took place on two different days.
- *Confidentiality level:* The _D, _R, or _O suffix indicates variables that have been modified during the anonymization process (see Section 1.4). The suffix _O signalizes that data in this variable is only available via On-site acces; _R refers to variables where access to detailed information is only possible via RemoteNEPS and On-site stay; and _D means that data in this variable has been extracted from the corresponding _O or _R variable to make at least some information available in the Download version of the Scientific Use File. The confidentiality suffixes stand either alone (t*_R) or in combination with other suffixes (t*_g3R).

3.2.2 Conventions for competence variable naming

The naming of variables from competence measurements and direct measures follows an alternative logic. In contrast to other data files, the competence datasets are structured in *WIDE format*; that is, all values for a single respondent are represented in one row of the data matrix. Thus, the integration of information from several competence domains collected across several survey waves requires specific conventions for variable naming. Competence variables are characterized by three name components and supplementing suffixes. The first component indicates the competence domain of the measurement (two characters, e. g., vo for vocabulary). The second part identifies the target group and the survey wave or class level in which the measurement was first used (two or three characters, e. g., k1 for kindergarten children during the first wave). The target group identification does not necessarily indicate the cohort or testing wave of the measurement. Please refer to the explanations in the next section for the special features of repeatedly used test items. Some competence measurements are not designed for specific age groups, but are implemented unmodified in different cohorts and testing waves. In these cases the target group is defined as ci (cohort invariant). The third component denotes the item number. Table 5 contains all specifications of a competence variable name.[5]

[5] The variables generated from the competence data in the additional dataset xPlausibleValues follow the same naming logic – with a uniform suffix _pv# after the first two parts of the naming convention.

Table 5: Conventions for competence variable names

Part I: Competence Domain (2 chars)

ba	Business administration and economics
bd	Backwards digit span: Phonological working memory
ca	Categorization: SON-R subtest
cd	Cognitive development: Sensorimotor development
cl	Civic Literacy
dc	Digital competence
de	Delayed gratification: Executive control
dg	Domain-general cognitive functions (DGCF): Cognitive basic skills
ds	Digit span: Phonological working memory
ec	Flanker task: Executive control
ef	English foreign language: English reading competence
fa	FAIR: Attention abilities
gk	General knowledge
gr	Grammar: Listening comprehension at sentence level
hd	Habituation-dishabituation paradigm
ic	Information and communication technology literacy (ICT)
ih	Interaction at home: Parent-child interaction
ip	Identification of phonemes: Phonological awareness
li	Listening: Listening comprehension at text/discourse level
lk	Early knowledge of letters
ma	Mathematical competence
mb	Mathematical competence from IQB-BT
md	Declarative metacognition
mp	Procedural metacognition
ni	Nonverbal reasoning
nr/nt	Native language Russian/Turkish: Listening comprehension
on	Blending of onset and rimes: Phonological awareness
or	Orthography
rb	Reading competence from IQB-BT
re	Reading competence
ri	Rimes: Phonological awareness
rs	Reading speed
rx	Early reading competence
sc	Scientific competence
st	Scientific thinking: Science propaedeutics
vi	Verbal reasoning
vo	Vocabulary: Listening comprehension at word level

(...)

Table 5: (continued)

Part II: Target Group (1 char)**, followed by wave or grade** (1-2 digits)

n#	Newborns in wave #
k#	Kindergarten children in wave #
g#	Students at school in grade #
s#	University students in wave #
a#	Adults in wave #
ci	Cohort invariant (for instruments administered unchanged in all cohorts)

Part III: Item number (3-4 chars)

For most competence domains, these item numbers only indicate different items.

Part IV: Suffixes (starting with an underscore)

_pb	Paper-based test modus (proctored)
_cb	Computer-based test modus (proctored)
_wb	Web/Internet-based test modus (unproctored)
_c	Scored item variable (s_c for partial credit-items)
_sc1	Weighted likelihood estimate (WLE) [a] [b]
_sc2	Standard error for the WLE [b]
_sc3	Sum score
_sc4	Mean score
_sc5	Difference score (for procedural metacognition)
_sc6	Proportion correct score (for procedural metacognition)
_sc8	Test stop
_sc9	Basal/Ceiling set (for vocabulary), number of practice items (for digit span)
_p	Maximum value for an item (only in xDirectMeasures of Starting Cohort 1)
_b	Minimum value for an item (only in xDirectMeasures of Starting Cohort 1)
_m	Mean value for an item (only in xDirectMeasures of Starting Cohort 1)
_s	Sum value for an item (only in xDirectMeasures of Starting Cohort 1)
_n	Number value for an item (only in xDirectMeasures of Starting Cohort 1)

[a] WLEs and their standard errors are estimated in tests that are scaled based on models of Item Response Theory (cf. Pohl and Carstensen, 2012).

[b] WLEs and their standard errors are corrected for test position; uncorrected WLEs and standard errors are indicated by an additional u in the suffix (_sc1u, _sc2u).

The additional suffixes inform about the mode of test execution if more than one survey modus has been applied for a measurement and about the sort of item score and overall competence score. There is a distinction between scored items named [varname]_c and scored partial credit-items named [varname]s_c. The latter is relevant if more than one correct solution is possible (e. g., value 0 = “0 out of two points”, value 1 = “1 out of two points”, value 2 = “2 out of two points”), whereas the former is applied for dichotomous solutions (value 0 = “not solved”, value 1 = “solved”). In addition to the single item scores, several aggregated scores are provided for competence measurements. They are indicated by `_sc[number]` and a few special suffixes for Starting Cohort 1. A letter appended to the suffix indicates that more than one aggregated score for a competence measurement is available (e. g., `_sc3a`, `_sc3b` for different sum scores of any test). Detailed descriptions on how the aggregated competence scores were estimated can be found in the domain-specific documentation reports. The last part of Table 5 shows all possible suffixes in competence variable names and their meanings.

Identification of repeated test items

In some competence measurements identical items are implemented in different testing waves (e. g., mathematics). Identifying repeatedly measured test items in NEPS data can be easily done by looking for competence variables with an identical word stem. If the same test item is surveyed in different survey waves or starting cohorts, the variable name is equiped with an additional suffix. It is important to know that the two or three characters for the target group (second part of the variable name) always indicate the wave or cohort in which the item was initially used. The word stem is then fixed and does not change when the item is used again in later waves or other cohorts. If the variable name does not contain a suffix for repeated use, then the second part of the word stem refers to the target group of the realized measurement. However, if the variable name includes a suffix for repeated use, then the values of the variable do not refer to the target group according to the word stem, but to the target group according to the suffix. The suffix that points to the repeated use consists of two parts: The first element indicates the starting cohort of current item administration and the second element indicates the time of current item administration.

The following example illustrates this logic: The competence variable `vok10067_sc2g1_c` is a vocabulary item (`vo`) initially measured during the first kindergarten survey wave of Starting Cohort 2 (`k1`). However, the values in this variable reflect the scored measurements of this item´s repeated use among the target persons of Starting Cohort 2 in the course of the survey wave in grade 1 (`_sc2g1`), and thus two years after the first measurement.

3.2.3 Labels

As a rule, the seven-digit variable names are not sufficient to uniquely identify the respective contents of the variables and to differentiate sufficiently between items. All variables therefore have *variable labels* for more detailed description. In addition, most variables contain *value labels* for the respective value characteristics. All information is available in German and English and is typically displayed directly in the editor of the statistics program, e.g. for frequency calculation or when searching the data (applies to SPSS and Stata, see also Section 1.3).

In addition to the variable and value labels, the datasets also contain extended characteristics for variables. These include the question text from the survey instrument, associated filter conditions, as well as other meta information. All extended features can be accessed directly within the data files. Stata users apply the `infoquery` command for this, which is part of the *NEPStools* package (see Section 1.8). SPSS users will find the additional meta information in the "Variable View" at the end of each variable line.

As explained in more detail in Section 4, NEPS data from different waves are integrated as much as possible. For panel data, this primarily means that many variables contain information from multiple waves. In most cases of such a data integration, the meta information between the waves does not change. However, if there are changes to the meta information of a repeatedly measured item, and if these changes are not significant enough to store the information in separate variables, the assignment of meta information follows a general rule: **The meta information available in a dataset always corresponds to the most recent instrument in which the respective item was used.**

A concrete example is the adaptation of interviewer instructions or question texts from the informal salutation ("Du") to the formal salutation ("Sie"). Since these changes are not expected to have any effect on how a question is answered, the corresponding values across multiple waves get integrated into one variable. If the meta information of such a variable in the dataset is requested, the wording of the latest item formulation will be displayed (in the given example with the formal salutation "Sie"). In case of uncertainties regarding the continuity of meta information of a variable across different waves, we recommend to consult the original *survey instruments* for the individual waves.

3.3 Missing values

The NEPS data contain various missing codes to differentiate between various types of missing values. All missing codes have negative values or are defined as system missing. Depending on the statistics program used, one has to ensure that these codes are processed correctly. In the offered SPSS datasets, the missing codes are already defined as missing values. When using Stata, the missing codes must first be excluded from the analyses by the user as missing values. For this purpose the command `nepsmiss` is available in the *NEPStools* package (see Section 1.8). **The general recommendation is to always carefully check the frequency distributions of the relevant variables before running an analysis.** The three main types of missing codes are summarized in Table 6 and described below.

Table 6: Overview of missing codes

Code	Meaning	Note
Item nonresponse		
–94	not reached	only relevant for instruments with time restrictions (e. g., competence test measures)
–95	implausible value	assigned by survey agency (e. g., multiple answers to a one-answer question in PAPI)
–97	refused	as default answer option to the question
–98	don’t know	as default answer option to the question
–20,…,–29	*various*	item-specific missing with informative value label (e. g., “no grade received” for question about school grades)
Not applicable		
–54	missing by design	question not included in (sub)sample-specific instrument (e. g., not asked in all waves)
–90	unspecific missing	e. g., question not answered, empty field (PAPI) or missing information despite soft response constraint (CAWI/CASI)
–91	survey aborted	question not reached due to early termination of the instrument (CAWI/CASI)
–92	question erroneously not asked	question not asked by mistake (CAWI/CATI)
–93	does not apply	as default answer option to the question
–99	filtered	filtered out question (other than CATI/CAPI)
.	*system*	filtered out question (CATI/CAPI)
Edition missings (recoded into missing)		
–52	implausible value removed	only in exceptional cases (at the request of responsible item developers)
–53	anonymized	sensitive information removed (e. g., country of birth of parents in the *Download* version)
–55	not determinable	not sufficient information to generate the variable value (e. g., net household income)
–56	not participated	in case of unit nonresponse (only used in certain datasets)

Item nonresponse: The first type of missing codes occurs when a person has not (validly) replied to a question.

- Typical cases of item nonresponse are “refused” (–97) answers and “don’t know” (–98) answers.
- Missing values specified by the survey agency due to an incorrect use of the instrument are coded as “implausible value” (–95).
- Within the competence data, there is a special missing code indicating that a question or test item was “not reached” (–94) due to time constraints or other test setting restrictions. It usually signals that the respondent had to quit the test somewhere before this point.
- Other missing codes refer to various categories of “item-specific nonresponse” (–20, …,–29) such as –20 for “stateless” in the citizenship variable `p407050_D`.

Not applicable: The second type of missing codes occurs when an item does not apply to a respondent.

- The code “missing by design” (–54) is assigned when respondents in a (sub)sample have not been asked the respective questions. This is usually the case if the administered survey instrument contains (sub)sample-specific questionnaire modules. The code is also used for the more general case where values of a variable are not available due to the design of the survey (e. g., measurement rotation with either easier or heavier test tasks).
- If either the respondent or the interviewer indicates that a particular question is not applicable to the person, the missing value is coded as “does not apply” (–93). If, on the other hand, filtering takes places automatically via the survey instrument, the coding of the filtered out questions depends on the survey mode: in CATI and CAPI interviews, a system missing value (`.`) is assigned for this; in all other modes the respective code is “filtered” (–99).
- If a respondent has terminated the survey in an online mode (CAWI/CASI) before reaching the end of the instrument or if the survey session has been aborted by timeout, the missing code “survey aborted” (–91) is assigned to all questions that were not answered at the end of the questionnaire.
- Missing values that cannot be assigned to any of the above categories are coded as “unspecific missing” (–90). This missing code usually occurs in PAPI questionnaires when a respondent has not answered a question for unknown reasons or in CAWI/CASI interviews when a respondent has refused to answer a question despite soft response constraint.

Edition missings: The third type of missing codes is defined in the process of data preparation for the Scientific Use File.

- If in the data edition process certain values which are not considered to be meaningful are requested to be removed, the missing code “implausible value removed” (–52) is assigned in their place. As a rule, however, all values from the field instruments are included in the Scientific Use File without further plausibility checks (see Section 3). Only in exceptional cases, when the responsible item developers explicitly recommend a removal of implausible answers, this missing coding is done.

- Sensitive information that is only available via Remote and/or On-site access is encoded in the more anonymized data access option as “anonymized” (–53).
- In general, coding schemes are used to generate variables (e. g., occupational coding; see Section 3.4). However, if the information from the original data is not sufficient to generate a suitable value, the missing code “not determinable” (–55) is used instead.
- If a person was not present during the interview or did not complete a questionnaire at all, even though it was administered to the person, the concerning variables receive the code “not participated” (–56). This missing code is special in the sense that target persons for whom no survey data at all are available for a certain wave (e. g., due to illness) are usually not included in the corresponding datasets. This missing code is only used in the special cases of datasets that integrate several waves in wide format (e. g., `xTargetCompetencies`) or that also contain observations for non-participating persons in a wave (e. g., `CohortProfile`).

3.4 Generated variables

Coding and recoding of open responses

At various points in the NEPS survey instruments there are so-called open-ended questions where respondents can or should enter their answers as text. A typical example is information about occupation.

The open text format allows respondents to specify anything they want. A practical way to deal with the resulting string information is to code and recode the information for further processing and later analyses. In general, coding describes the process of assigning one or more codes from selected category schemes to the string information, e. g. the classification of occupational data according to DKZ (database of documentation codes, *Datenbank der Dokumentationskennziffern*) or WZ (classification of economy branches, *Klassifikation der Wirtschaftszweige*).

The term “recoding” is used here to describe the process of assigning a code from an already presented closed answer scheme. This usually applies to semi-open question formats where respondents enter a text under the category “other”, but which can be assigned ad hoc to one of the given closed answer categories. Therefore, the recoding does not define any new codes; the presented answer scheme of the respective question is not extended.

The most common and comprehensive coding scenarios in the fields of occupation, education, branches, courses, and regional information are processed by the Research Data Center (FDZ-LIfBi) itself. Other coding tasks are distributed among the responsible working units at the LIfBi in Bamberg and the partners in the NEPS consortium.

Derived scales and classifications

The (re-)coding of open answers or string entries into primary classifications (such as DKZ2010 or WZ08) is a first and essential step towards making this information available within the NEPS Scientific Use Files in a user-friendly and analyzable way. The standardized derivation of further classifications or scales, especially in the area of educational qualifications and occupational titles, is a second and no less important step. At least three types and objectives of derivations can be distinguished:

- Derivations from primary classifications (and originated from string entries/open answers) into other classifications that function as a standard scheme in other studies or international comparisons, e. g. ISCO instead of KldB in the field of occupations
- Derivations from primarily closed response schemes into general classifications and schemes using auxiliary information, e. g. ISCED or CASMIN from school certificate and training data plus additional information on the type of school/training
- Combination of the two types, e. g. EGP class scheme via derived ISCO classification plus information on self-employment and supervisory status

Figure 5 shows the derivation paths for several **occupational scales and schemes** provided in the NEPS.

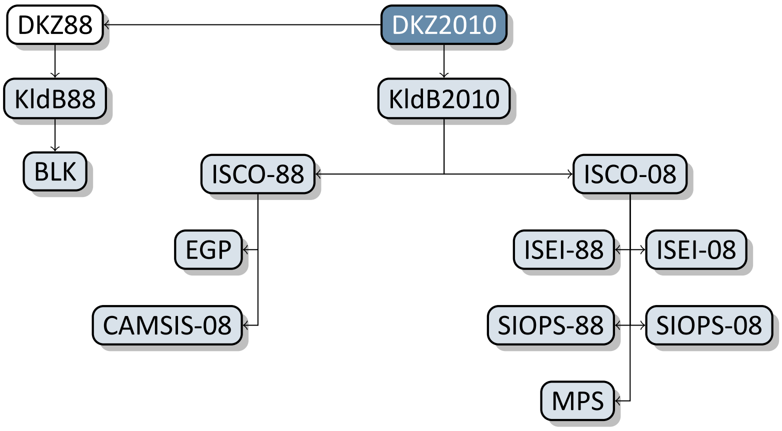


Figure 5: Derivation paths for several occupational scales and schemes provided in the NEPS

A detailed description of the standard derivations for **educational attainment** (ISCED, CASMIN and Years of Education) can be found in the corresponding documentation report by Pelz, 2025.

4 Data Structure

4.1 Overview

The longitudinal NEPS study is a complex research database. It is the result of extensive data edition processes with the aim of organizing the information in a well-structured, reproducible and user-friendly way, while at the same time preserving a maximum level of detail in the data. To facilitate the handling of the data, a number of additionally generated variables and datasets is included in the Scientific Use Files of all NEPS starting cohorts.

In principle, all information collected in the course of a panel wave is appended to the information from previous waves in the corresponding data file. Data files containing panel information from several waves are denoted with a ***p*** at the beginning of the file name. For example, the `pTarget` file contains information from the target persons' interviews with one row in the dataset representing the information of one individual in one wave (see Section 4.3).[6]

This convention does not apply to all longitudinal information in the Scientific Use File. There are competence measurements that were repeatedly carried out with the same target persons. Since the content of competence tests varies over time, the corresponding data is structured in *WIDE format* (see Section 3.2.2). Such cross-sectionally structured data files with one row representing information of one individual from all waves are marked with an ***x***.

Another type of longitudinal data structuring refers to episode or spell data. For the information collected prospectively and retrospectively by using iterative question sets, the Scientific Use File provides life area-specific spell datasets. They are marked by a preceding ***sp***. An example is `spEmp`, informing about current and former episodes of employment (see Section 4.4).[7]

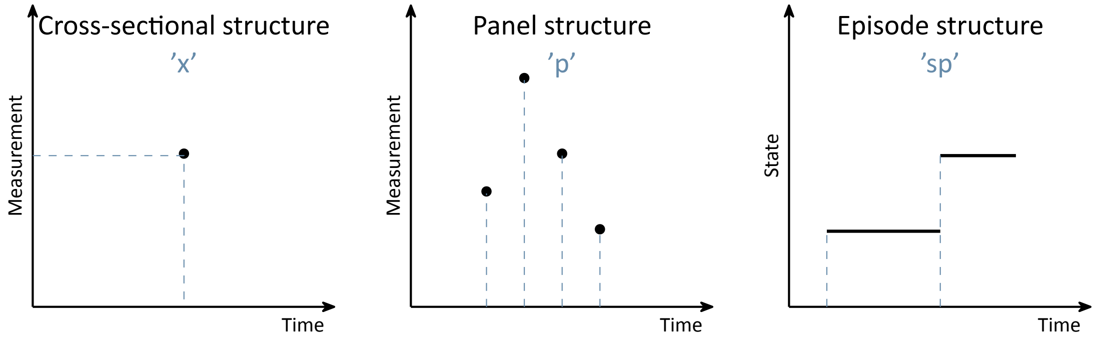


Figure 6: Different types of data structures

[6] Even though the Scientific Use File for Starting Cohort 8 currently only contains information from the first survey wave, the prospective panel datasets are already marked with the ***p*** in the file name.
[7] In the first survey wave of Starting Cohort 8, no episode data were collected from the respondents.

In addition to the interview and competence and episode data surveyed from the respondents, there are so-called paradata and derived information available. The respective data files can be identified by the leading capital letter in the name (e. g., `CohortProfile`, `TargetMethods` or `Weights`; see Figure 7).

4.2 Identifiers

The multi-level and multi-informant design of the NEPS – together with the provision of information in several data files – requires the use of multiple identifiers, especially for merging information from different datasets. The syntax examples in Section 4.5 demonstrate typical applications for linking information from the respective file to information from other files. The following identifier variables are particularly relevant in Starting Cohort 8:

ID_t identifies a target person persistently. The variable `ID_t` is unique across waves and samples; it is also used uniquely in each of the NEPS starting cohorts.

wave indicates the survey wave in which the data was collected.

ID_p identifies the surveyed parent of a target person persistently. If the interviewed parent changes during the course of the panel survey, the identifier `ID_p` changes accordingly.[8]

ID_i identifies the educational institutions attended by the target person (e. g., kindergartesn or day care centers, schools, universities). The variable `ID_i` is unique across waves and starting cohorts.

ID_e identifies surveyed educators or teachers persistently. This identifier variable can be used to merge data from such context persons with observations from the children. **However, it is not possible to merge the data directly with `ID_t`.** The linking with data of the target persons requires the “path” via the dataset `LinkTargetTeacher` that is offered specifically for this purpose. An example is given in the respective dataset description (see Section 4.5.3).

ID_cc identifies the class that the target person attends – within a wave. This identifier variable is **not** unique across waves.

There are further identifier variables available, for example to indicate a target person’s membership in a particular test group (`ID_tg` in `CohortProfile`, not applicable to all starting cohorts) or to indicate the interviewer who conducted the respective interview (`ID_int` in the `Methods` datasets). These identifiers are less relevant for the merging of information from different datasets and negligible for most empirical applications.

[8] The persistence of the parent ID across the survey waves is a major innovation of Starting Cohort 8 compared to the previous NEPS starting cohorts.

4.3 Panel data

In general, all information from the latest survey wave is appended to the already existing information from previous waves (as far as possible). This kind of data preparation generates integrated panel data files in a *LONG format* as opposed to providing one separate file per wave (where each file contains only the information from a single wave). When working with the integrated NEPS panel data, the following points are important to be considered:

- A row in the dataset contains the information of one respondent from one survey wave.
- More than one variable is needed to identify a single row for uniquely selecting and merging information from different datasets. Usually, `ID_t` and `wave` are the relevant identifiers.
- Although not all questions were administered in each survey wave, the data structure contains cells for all variables and waves. If no data is available, e. g., because a question was not asked in a wave, the corresponding cells are filled with a missing code (see Section 3.3).
- If information about a variable has been repeatedly surveyed from one individual across multiple waves, the corresponding data is stored in multiple rows in the dataset.

The *LONG format* is usually the preferred data structure for the analysis of panel information. However, cross-sectional information is often required as well in analyses, e. g., because it depicts time-invariant characteristics or was collected only once for other reasons. In most scenarios, the relevant set of variables might not have been measured in a single wave. Therefore, the data cannot be analyzed together straightaway because it is stored in *different rows* of the dataset. Cross-tabulating these variables in their current state results in an L-shaped table in which all observations of one variable fall into the missing category of the other variable and vice versa. The best way to deal with this issue depends very much on the intended analysis and the methods used. The two typical procedures are:

- The integrated panel data file is split into wave-specific subfiles so that each dataset contains only information from one wave. The relevant information from these subfiles is then merged together by using only the respondent's identifier (`ID_t`) as key variable. The `wave` variable is not needed here and remains neglected. Before this step, variables may need to be renamed to make them wave-specifically identifiable. The result is a dataset with a cross-sectional structure in which the information of one respondent is summarized in one single row (*WIDE format*). Stata's *reshape* command (and similar tools in other software packages) basically follow this strategy.
- Alternatively, the panel structure is retained and the values from observed cells of a variable are copied into the unobserved cells of this variable. For example, if the place of birth was only surveyed in the first wave, the corresponding value can be copied into the respective cells of the respondent's other waves. This method is particularly useful for time-invariant variables (e. g., country of birth, language of origin), that are usually collected only once in a panel study.

4.4 Episode or spell data

A major focus of the NEPS is on recording biographical trajectories as completely as possible. Depending on the NEPS cohort, different areas of the life course are surveyed as so-called ***episodes***. These areas range from school history, education and employment history to household-related histories (e. g., partnership, siblings, children). The retrospective collection of biographical information – What has happened in a certain area of life since time X or since the last interview? When did an episode start and when did it end? What are the characteristics of this episode? – is very demanding and the resulting data material is rather complex. Episode or spell data are therefore a particular challenge for the analysis. The following explanations help to better understand this data format and its processing in order to handle it in a meaningful and appropriate way. The information applies equally to all NEPS cohorts, even if the specific data material differs from starting cohort to starting cohort according to the surveyed biographical areas. Information on how to work with the spell data can also be found in the video tutorials offered and in the online forum (see Section 1.2).[9]

In episode data, there is one row for each episode that was captured during an interview. Usually, a start and an end date describe the duration of the episode. The remaining variables in spell datasets provide additional information about that episode. These "descriptors" are related to the particular episode and fill it with content, so to speak. It means (especially for time-variant variables like education or occupation or employment) that the respective values indicate the status *at the time of the episode*, which is not necessarily the current status valid nowadays (or at the time of the interview). To give an example, in the dataset `spEmp` there is a period of time for a particular respondent during which she or he worked in a particular job without interruption. If this person changed to a new job, this defines a new episode stored in a new data row. Further changes in this context may also lead to new episodes, e. g., a change of the employer or the conclusion of a new employment contract – but not if the salary, working hours or other characteristics (possible descriptors) of the respective job change. Episodes can be understood as the smallest possible units of one's life history, in this case the employment biography. Several relevant changes in such a biographical area are reflected in several new data rows.

To make this clear: The number of episodes is per se independent of the survey wave. During an interview (one wave) there might be a number of episodes recorded (several rows) or no episode at all (no row). The dates given for an episode relate to that episode, whereas the wave indicator relates to the interview date. The two can overlap, but do not have to. Data users should consider both entities – `spell` and `wave` – to be independent of each other. In exceptional cases, it might be important to know when the information about an episode was collected. Beyond that, however, the variable `wave` can be ignored in the episode data. In particular, the `wave` variable should **not** be used to merge episode data with panel data in the *LONG format*. Since episode data may contain multiple (or no) rows per survey wave and target ID, and panel data contain exactly one row for each survey wave and target ID, such a merge

[9] This data type does not yet play a role in the current Scientific Use File of Starting Cohort 8.

will result in converting the panel data to an episode structure. The result of this kind of transformation is no longer analyzable in a meaningful way. A better approach is to aggregate the episode data to one piece of information either for each interview date (e.g., number of jobs since the last interview) or for the entire life course (e.g., highest educational attainment), so that only one row per survey wave and respondent is left for the merging process.

In addition to (time-dependent) episode data such as jobs, which we call *duration spells*, there are two other types of episode spells in the NEPS data:

- Occurring events or the transition from one state to another (e. g., change of marital status, change of educational level) are recorded in *event spells* with one row describing one state.
- The existence of children, partners, etc., is recorded in *entity spells* with one row per entity.

4.5 Data files

In the following section, every data file of Starting Cohort 8 is described in a subsection, including a data snapshot and a syntax example that often deals with the challenge of merging information from another file (in Stata). The syntax examples are written in an easily comprehensible way. There is no need to additional install any "ado files", although it is highly advised to use the `NEPStools` (see Section 1.6).

To facilitate the understanding of the relationships between the data files in the Scientific Use File, an overview of all datasets is provided in Figure 7. The lines in this figure symbolize how a data file may be linked to other files. This is not meant to document every possible data link, but rather tries to give an idea on which data files relate most. By clicking on a box, one gets directed to the short description of this dataset.

For the Stata syntax examples in the subsequent dataset short portraits to work, the following globals must first be set. Just adapt and copy the lines below to the top of the syntax files or execute them in the Stata command line before running the syntax.

```
** Starting Cohort
global cohort SC8
** version of this Scientific Use File
global version 1-0-0
** path where the data can be found on your local computer
global datapath Z:/Data/${cohort}/${version}
```

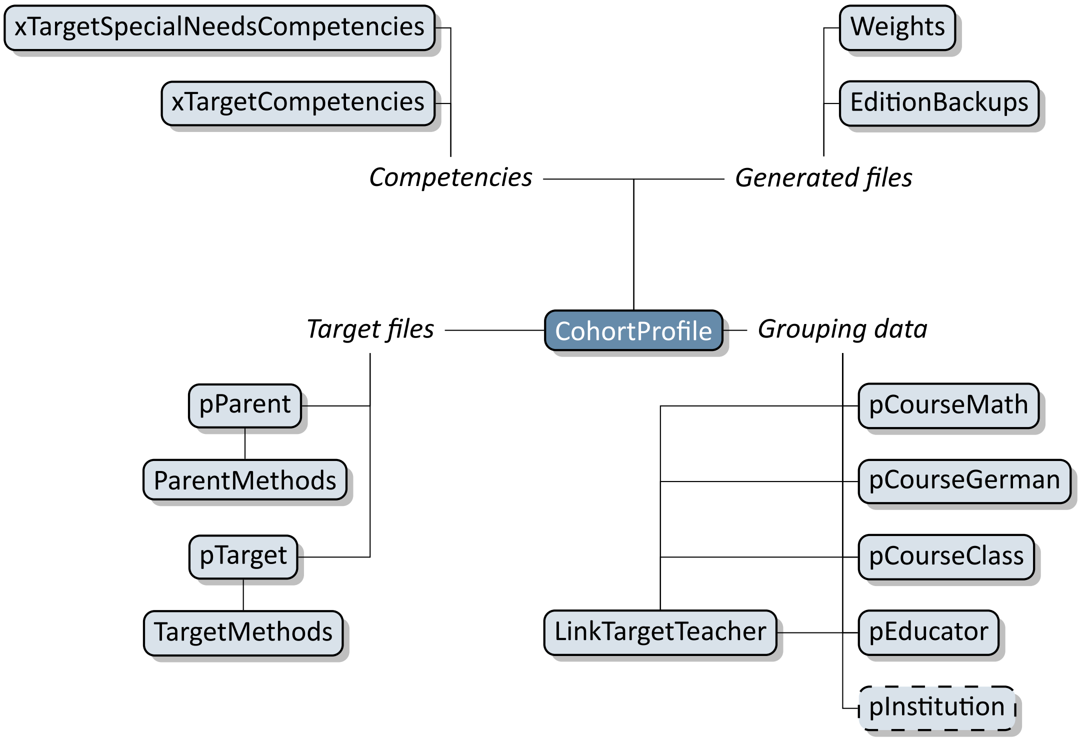


Figure 7: Graphical overview of all data files. Each box represents one data file. Relations are indicated by connecting lines. Files with a dashed border are not available in the Download version of the Scientific Use File. Click on a data file to get more information.

4.5.1 CohortProfile

« go back to overview

Description

Paradata on the cohort’s panel sample

File structure

long format: 1 row = 1 respondent in 1 wave

ID variables needed to identify a single row

ID_t wave

Other ID variables useful for linkage

ID_i ID_cc ID_tg

Number of variables / number of rows in file

31 / 6,141

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave	Wave
cohort	NEPS Starting Cohort
tx80220	Participation/drop-out status
tx80521	Data available: survey target person
tx80522	Data available: competence test target person
tx8610m	Competence testing Target person: survey month 1
tx8610y	Competence testing Target person: survey year 1
tx8600y	Survey Target person: survey year
tx80524	Data available: institution

Exemplary data snapshot

ID_t	wave	tx80220	tx80521	tx80522	tx8610y	tx8600y	tx80524
4086325	1	Participation	yes	yes	2023	2023	yes
4088960	1	Participation	yes	yes	2022	2022	yes
4089535	1	Participation	yes	yes	2023	2023	yes
4090991	1	Participation	yes	yes	2022	2022	yes
4091082	1	Participation	yes	yes	2023	2023	yes

The dataset CohortProfile includes all target children of the panel sample. These are all students with an initial agreement to participate. This dataset is particularly suitable for selecting cases for the analysis and for merging information from different datasets.[10]

In general, we strongly recommend using this file as a starting point for any analysis!

For each student and each wave, the CohortProfile contains relevant ID variables (person: ID_t, class: ID_cc, school: ID_i), but also meta information such as the type of school according to the sampling frame (tx80106), the participation status (tx80220), the availability of specific data (e. g., competence data tx80522), the school grade (tx80234), or the gender and birth date of the target children according to the list of students (tx80501/tx8050*). In addition, there are variables of the dates when the competence tests and interviews took place (tx8610*/tx8600*/tx8620*). Please note, that all dates are provided in months and years only.

[10] Another dataset made available for merging purposes is the LinkTargetTeacher file.

Stata 1: Working with CohortProfile

```
** open the data file
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear

** change language to english (defaults to german)
label language en

** how many different respondents are there?
distinct ID_t

** as you can see, in this file there is an entry for every
** respondent in each wave
tab wave

** check participation status by wave
tab wave tx80220
```

4.5.2 EditionBackups

« go back to overview

Description

Backup of original data that were modified during the data edition process

File structure

long format: 1 row = 1 changed value of a variable in a data file

ID variables needed to identify a single row

dataset varname ID_t ID_e ID_cc wave

Other ID variables useful for linkage

mergevars

Number of variables / number of rows in file

11 / 270

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave	Wave
dataset	Dataset name
varname	Variable name
mergevars	ID-Variables for merging
sourcevalue_num	Original value (if numeric)
editvalue_num	New value (if numeric)
sourcevalue_str	Original value (if string)
editvalue_str	New value (if string)

Exemplary data snapshot

ID_t	wave	dataset	varname	mergevars	sourcevalue_num	editvalue_num
4086507	1	pTarget	t741002	ID_t wave	..00	2.00
4088562	1	pTarget	t741002	ID_t wave	..00	2.00
4091045	1	pTarget	t741002	ID_t wave	..00	3.00
4091884	1	pTarget	t741002	ID_t wave	..00	-52.00
.	.	pEducator	e76212m	ID_e	11.30	3.00

The dataset EditionBackups consists of single values that have been changed or modified in the data edition process. These single values can potentially originate from all other datasets. EditionBackups contains both the original and the changed value of a particular variable in a particular data file (i. e., one change or edition per row). The following variables are provided for each change:

- varname and dataset specify the name of the variable affected by an edition and the respective data file
- mergevars lists the identifier variables that are required to merge the information back to the respective data file
- sourcevalue_[num/str] contains the original, unaltered value; variables with the suffix _num refer to values from numeric variables and variables with the suffix _str refer to values

from string variables (if the variable is numeric, `_str` is used to store the value label for this value instead)

- `editvalue_[num/str]` contains the result of the modification, i. e. the value into which the original value was changed; these values correspond exactly to the values in the respective data file (again, there is a version for both numeric and string variables - or the label).
- `ID_t`, `wave`, ... are the different identifier variables needed to merge the orginal values to the respective data files

Stata 2: Working with EditionBackups

```
** In this example, we want to restore the original values in the variable
** t741002 (Household size) of datafile pTarget

** open the datafile
use "${datapath}/SC8_EditionBackups_D_${version}.dta", clear

** only keep rows containing data of the aforesaid variable
keep if dataset=="pTarget" & varname=="t741002"

** check which variables we need for merging
tab mergevars

** then keep the merging variables and the variable with
** the original values (for cross-checking, we also keep the
** variable editvalue, which contains the values found in pTarget)
keep ID_t wave sourcevalue_num editvalue_num

** rename the variables to emphasize affiliation
rename sourcevalue_num t741002_source
rename editvalue_num t741002_edit

** temporary save this data extract
tempfile edition
save `edition'

** open pTarget
use "${datapath}/SC8_pTarget_D_${version}.dta", clear

 ** add the above data
merge 1:1 ID_t wave using `edition', keep(master match)

** check all edition made
list ID_t wave t741002* if _merge==3

** replace the variable in the datafile with its original value
replace t741002=t741002_source if _merge==3
```

4.5.3 LinkTargetTeacher

« go back to overview

Description

Combination of ID variables on schools, classes, teachers, students

File structure

m:n format: 1 row = 1 combination of student ID and teacher ID per wave

ID variables needed to identify a single row

ID_t ID_e wave

Other ID variables useful for linkage

ID_cc ID_i tx20103

Number of variables / number of rows in file

6 / 5,256

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave	Wave
tx20103	Teacher specifications per student
ID_e	ID teacher/educator
ID_cc	Course-ID: Grade
ID_i	Institution ID

Exemplary data snapshot

ID_t	wave	tx20103	ID_e	ID_cc	ID_i
4086078	1	5	1020743	10051581002	1005158
4086078	1	5	1021754	10051581002	1005158
4086078	1	5	1022686	10051581002	1005158
4086078	1	5	1023356	10051581002	1005158
4086078	1	5	1023454	10051581002	1005158
4086183	1	3	1022661	10050461001	1005046
4086183	1	3	1023030	10050461001	1005046
4086183	1	3	1023222	10050461001	1005046

The `LinkTargetTeacher` dataset was generated to represent all possible ID combinations of students, teachers, classes and schools. Due to the survey design of Starting Cohort 8, a simple linkage is generally not possible due to the m:n data structure – there are usually several classes per school included in the survey; each class usually has several students in the sample; and there are often responses from several teachers for one single class.

It is therefore important to first think about the type of analysis and the data structure required for this before merging information from different datasets.

One can either exclude or aggregate certain information (e. g. by selecting only one teacher statement for a certain class or by averaging a certain characteristic from the various statements of several teachers per class) and then use these reduced data rows as the basis for adding the desired information from other datasets. Or, one can use the various ID variables in their multiple structure in this dataset to first retrieve information from other datasets (e. g. 1:m merge via `ID_t` with `pTarget` or via `ID_e` with `pEducator`) and then make a selection of the relevant cases or generate the data structure required for the analysis via aggregations etc.

Stata 3: Working with LinkTargetTeacher

```
** this example illustrates how you can add specific information from various other
** sources to LinkTargetTeacher

** open the LinkTargetTeacher file
use "${datapath}/SC8_LinkTargetTeacher_D_${version}.dta", clear

** append respondent information to this file (e.g., gender from CohortProfile)
merge m:1 ID_t wave using "${datapath}/SC8_CohortProfile_D_${version}.dta", nogen
  keep(master match) keepusing(tx80501)

** append teacher information (e.g., gender from pEducator)
merge m:1 ID_e wave using "${datapath}/SC8_pEducator_D_${version}.dta", nogen keep(
  master match) keepusing(e762111)

** append class information (e.g., team teaching from pCourseClass)
merge m:1 ID_cc ID_e wave using "${datapath}/SC8_pCourseClass_D_${version}.dta",
  nogen keep(master match) keepusing(ed0604f)
```

Stata 4: Additional example with LinkTargetTeacher

```
** in this example, we add the teacher ID (ID_e) to the pTarget datafile,
** so additional information from pEducator can be merged

use "${datapath}/SC8_LinkTargetTeacher_D_$version.dta", clear

** reduce to one teacher information per class - take first teacher
bysort ID_t wave ID_cc (ID_e): gen teachernumber = _n
keep if teachernumber == 1
drop teachernumber

isid ID_t
** --> dataset now is unique with respect to ID_t and can be merged to pTarget

** save a temporary file
tempfile link
save `link'

use "${datapath}/SC8_pTarget_D_$version.dta", clear

** merge ID_e from linkfile
merge 1:1 ID_t wave using `link', keep(master match) nogen keepusing(ID_e)

** add teacher information from pEducator
merge m:1 ID_e wave using "${datapath}/SC8_pEducator_D_$version.dta", keepusing(
  e76212y_R) nogen keep(master match)
```

Stata 5: Additional example with LinkTargetTeacher

```
** this examples shows how you could compare the age of teachers
** (note that this needs at least Remote version of SUF)

** open LinkTargetTeacher ...
use "${datapath}/SC8_LinkTargetTeacher_R_$version.dta", clear

** ... and merge survey year and date of birth
merge m:1 ID_e wave using "${datapath}/SC8_pEducator_R_$version.dta", nogen keep(
  master match) keepusing(e76212y_R ex8601y)

** generate approximate teacher age (additionally using months would be more precise)
gen teacherage = ex8601y - e76212y_R if e76212y_R >0 & ex8601y >0

** generate mean age of all teachers per student per wave
bysort ID_t wave (ID_e): egen teacherage_mean = mean(teacherage)

** recode into 10 year classes
recode teacherage_mean (20/30 =1 "21-30") (30/40 = 2 "31-40") (40/50 = 3 "41-50")
  (50/60 = 4 "51-60") (60/70 = 5 "61-70") (70/max = 6 "older than 70"), gen(tagemean)
label variable tagemean "mean age of all teachers"

** keep only variables of interest
keep ID_t wave tagemean

** drop unneccessary duplicates
duplicates drop

** save a temporary file ...
tempfile link
save `link'

** .. and merge this to pTarget
use "${datapath}/SC8_pTarget_R_$version.dta", clear
merge 1:1 ID_t wave using `link', keep(master match) nogen

** show distribution of teacher age mean
fre tagemean
```

4.5.4 ParentMethods

« go back to overview

Description

Paradata from the parents CATI interview

File structure

long format: 1 row = 1 parent in 1 wave

ID variables needed to identify a single row

ID_t wave

Other ID variables useful for linkage

ID_p ID_int

Number of variables / number of rows in file

33 / 4,597

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave	Wave
px80200	Interview: number of all contact attempts
px80209	Interview: length of interview (minutes)
px80212	Interview: change of contact person to previous wave
ID_int	Interviewer: ID
px80301	Interviewer: gender
px80302	Interviewer: age group
px80207	Interview: response code differentiated
px80400	Willingness: panel participation
px80401	Willingness: merging data from federal employment agency

Exemplary data snapshot

ID_t	wave	px80209	ID_int	px80301	px80302
4086827	1	35.68333	3188	male	30-49 years
4088040	1	48.17778	2945	male	older than 65 years
4088137	1	52.36111	3203	female	50-65 years
4088887	1	79.34333	3587	female	30-49 years
4091167	1	45.28889	3182	female	30-49 years

This dataset offers information on the data collection during the interview with the surveyed parents. These include characteristics of the interviewer such as gender (px80301) and age (px80302), the survey mode (px80202), the interview length (px80209), the differentiated response code (px80207), assessments of the interviewer on the interview (e. g., reliability px80323) etc.

Please note that this file contains all contacted parents, whether an interview was realized or not. Thus, ParentMethods includes more cases than the data file pParent. **It is also important to know that the parent ID (ID_p) is persistent across waves.**

Stata 6: Working with ParentMethods

```
** open the data file
use "${datapath}/SC8_ParentMethods_D_${version}.dta", clear

** change language to english (defaults to german)
label language en

** check out response code by wave
tab px80207 wave

** how many different interviewers did CATI surveys?
distinct ID_int

** get an overview on the count of contact attempts
summarize px80200
```

4.5.5 pCourseClass

« go back to overview

Description

Data about the class background

File structure

long format: 1 row = 1 school class in 1 wave

ID variables needed to identify a single row

ID_cc ID_e wave

Other ID variables useful for linkage

ID_i ex20102

Number of variables / number of rows in file

80 / 426

Contains data from waves

1

Exemplary variables

ID_cc	Course-ID: Grade
wave	Wave
ID_e	ID teacher/educator
ID_i	Institution ID
ex20102	Teacher specifications per class
e410011_g1R	First language/mother tongue Educator (ISO 639.2)
e79204a_R	Social composition of class: education
ed11500	Experience inclusion - in general

Exemplary data snapshot

ID_cc	wave	ID_e	ID_i
10049671001	1	1022223	1004967
10050171004	1	1021346	1005017
10051391005	1	1020957	1005139
10050051003	1	1021402	1005005
10051391004	1	1020957	1005139

This data file contains the information collected from the class teachers about the respective classes. This concerns information on the social composition of the class (e79204*_R), on teacher stereotypes (e31605*/e31606*), on co-teaching (ed0604*), on teaching and class climate (ed1104*), and on special needs issues (ed1152*_R). The educators reporting these information can be identified via ID_e, the respective school via ID_i.

In several cases, more than one educator reported information about a single class. The variable ex20102 indicates the number of teachers that answered questions on the same class.

To combine information from this data file with information from other data files, it is important to first consider the necessary data structure for the intended analysis. In many scenarios it makes sense to remove or aggregate information from teachers on the same class before merging the data (see also the description of LinkTargetTeacher).

Stata 7: Working with pCourseClass

```
** open the data file pCourseClass
use "${datapath}/SC8_pCourseClass_D_${version}.dta", clear

** be aware that for each class, multiple rows are existent.
** this is because the instrument has beeen reported by multiple educators
duplicates report ID_cc wave

** to further work with this data, we reduce it to one single row
** for each class. We do this by just keeping the first observation for a class.
** note that in a real situation, you most likely have to go into more detail here,
** and evaluate what to keep and how to do this
bysort ID_cc wave: keep if _n==1

** save this temporarily ...
tempfile pCourseClass
save `pCourseClass'

** ... and merge it to CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear
merge m:1 ID_cc wave using `pCourseClass', nogen keep(master match)
label language en

** now view how many respondents experience team teaching
** (ed0604f: Co-teaching form - team teaching)
tab tx80521 ed0604f
```

4.5.6 pCourseGerman

« go back to overview

Description

Data about teaching in German classes

File structure

long format: 1 row = 1 German class in 1 wave

ID variables needed to identify a single row

ID_cc ID_e wave

Other ID variables useful for linkage

ID_i ex20102

Number of variables / number of rows in file

65 / 257

Contains data from waves

1

Exemplary variables

ID_cc	Course-ID: Grade
wave	Wave
ID_e	ID teacher/educator
ID_i	Institution ID
ex20102	Teacher specifications per class
e22345a	Teaching quality - class management: class rules
e22686c	Self-efficacy - teaching: good questions
ed0750c	Forms of learning/organization: class teaching
e22141a	Teaching quality - frequency digital media German: research

Exemplary data snapshot

ID_cc	wave	ID_e	e22345a
10049881001	1	1023032	often
10051711002	1	1021308	often
10051521002	1	1020767	sometimes
10051861001	1	1021283	very often
10050441002	1	1023316	sometimes

This data file contains the information collected from the German teachers about the respective courses. This concerns information on teaching quality (e22141*-545*), on self-efficacy (e22686*), on teacher cooperation (e23207*), on praise strategies (ed0700*), and on forms of learning/organization (ed0750*). The educators reporting these information can be identified via ID_e, the respective school via ID_i.

In several cases, more than one educator reported information about a single class. The variable ex20102 indicates the number of teachers that answered questions on the same class.

To combine information from this data file with information from other data files, it is important to first consider the necessary data structure for the intended analysis. In many scenarios it makes sense to remove or aggregate information from teachers on the same class before merging the data (see also the description of LinkTargetTeacher).

Stata 8: Working with pCourseGerman

```
** open the data file pCourseGerman
use "${datapath}/SC8_pCourseGerman_D_${version}.dta", clear

** be aware that for each class, multiple rows are existent.
** this is because the instrument has beeen reported by multiple educators
duplicates report ID_cc wave

** to further work with this data, we reduce it to one single row
** for each class. We do this by just keeping the first observation for a class.
** note that in a real situation, you most likely have to go into more detail here,
** and evaluate what to keep and how to do this
bysort ID_cc wave: keep if _n==1

** save this temporarily ...
tempfile pCourseGerman
save `pCourseGerman'

** ... and merge it to CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear
merge m:1 ID_cc wave using `pCourseGerman', nogen keep(master match)
label language en

** now view how many respondents experience small group work
** (ed0750a Forms of learning/organization: small group work)
tab ed0750a tx80521
```

4.5.7 pCourseMath

« go back to overview

Description

Data about teaching in math classes

File structure

long format: 1 row = 1 math class in 1 wave

ID variables needed to identify a single row

ID_cc ID_e wave

Other ID variables useful for linkage

ID_i ex20102

Number of variables / number of rows in file

64 / 230

Contains data from waves

1

Exemplary variables

ID_cc	Course-ID: Grade
wave	Wave
ID_e	ID teacher/educator
ID_i	Institution ID
ex20102	Teacher specifications per class
e22346a	Teaching quality - class management: class rules
ed0850h	Forms of learning/organization: project learning
e22142a	Teaching quality - frequency digital media math: research
e22247e	Teaching quality - support digital media math: work on tasks

Exemplary data snapshot

ID_cc	wave	ID_e	ID_i	ed0850h
10051071001	1	1022047	1005107	never
10051091001	1	1022768	1005109	a few times a year
10051801004	1	1022858	1005180	a few times a month
10050151006	1	1022909	1005015	never
10051941001	1	1023092	1005194	never

This data file contains the information collected from the math teachers about the respective courses. This concerns information on teaching quality (e22142*-546*), on self-efficacy (e22688*), on teacher cooperation (e23208*), on praise strategies (ed0800*), and on forms of learning/organization (ed0850*). The educators reporting these information can be identified via ID_e, the respective school via ID_i.

In several cases, more than one educator reported information about a single class. The variable ex20102 indicates the number of teachers that answered questions on the same class.

To combine information from this data file with information from other data files, it is important to first consider the necessary data structure for the intended analysis. In many scenarios it makes sense to remove or aggregate information from teachers on the same class before merging the data (see also the description of LinkTargetTeacher).

Stata 9: Working with pCourseMath

```
** open the data file pCourseMath
use "${datapath}/SC8_pCourseMath_D_${version}.dta", clear

** be aware that for each class, multiple rows are existent.
** this is because the instrument has beeen reported by multiple educators
duplicates report ID_cc wave

** to further work with this data, we reduce it to one single row
** for each class. We do this by just keeping the first observation for a class.
** note that in a real situation, you most likely have to go into more detail here,
** and evaluate what to keep and how to do this
bysort ID_cc wave: keep if _n==1

** save this temporarily ...
tempfile pCourseMath
save `pCourseMath'

** ... and merge it to CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear
merge m:1 ID_cc wave using `pCourseMath', nogen keep(master match)
label language en

** now view how many respondents experience small group work
** (ed0850a Forms of learning/organization: small group work)
tab ed0850a tx80521
```

4.5.8 pEducator

« go back to overview

Description

General information from the teachers

File structure

long format: 1 row = 1 educator in 1 wave

ID variables needed to identify a single row

ID_e wave

Other ID variables useful for linkage

ID_i

Number of variables / number of rows in file

211 / 2,496

Contains data from waves

1

Exemplary variables

ID_e	ID teacher/educator
wave	Wave
e400000	Migrant background
e514001	General satisfaction: life
ed1101a	Job satisfaction: work meaningful and important
ed1102c	Occupational stress: satisfied
e53716a	Type teaching degree course: elementary school
e537167_g1	Education: type of qualification (categorized)
ed0605a	Attitudes: improve education
e222000	Media-didactic concept: existence concept

Exemplary data snapshot

ID_e	wave	e400000	e537167_g1
1021659	1	3	other vocational qualification
1021879	1	3	Bachelor (e.g. B.A., B.Sc.)
1022537	1	3	Diploma, Master (M.A., M.Sc.)
1022177	1	3	Magister, state examination
1023604	1	3	Diploma, Master (M.A., M.Sc.)

In addition to the class or course-specific modules, all surveyed teachers answered a general part of the questionnaire. The information from this module is stored in pEducator. The contents relate, for example, to ratings on school culture (e22208*), on dealing with diversity in school life (e22222*), on teaching evaluation (e2228*), on aspects of leadership (e22237*), on the use of digital media (e22244*) and the promotion of IT skills (e22245*). Other content refers to the person of the teacher such as gender (e762111) and birth date (e76212*), immigrant background (e400000), teaching qualifications (e53718*), working time (e229822/e229823), and several attitudes (e. g., job satisfaction ed1101*).

This file contains all educators from the sample, no matter if they were class teachers, German teachers or math teachers. For the first time in NEPS, the study design included an invitation to all teachers at the participating schools, not just addressing those teaching the selected NEPS classes.

Please note that teacher and student information can be merged, but there is no direct link between teacher IDs and student IDs via CohortProfile. This is due the following reasons:

- By study design, one student could have several teachers (class, German, math).
- In some cases, more than one class/German/math teacher answered the respective questions on a single class or course (see variable ex20102) in the respective datasets.
- There is no 1:1 relationship in the design between teachers and students. Teachers have only been interviewed about themselves, as well as about the class. There were no questions asked to the teachers about individual students in wave 1.

To combine information from this data file with information from other data files, it is important to first consider the necessary data structure for the intended analysis. In many scenarios it makes sense to remove or aggregate information from teachers on the same class before merging the data (see also the description of LinkTargetTeacher).

Stata 10: Working with pEducator

```
** open the LinkTargetTeacher file
use "${datapath}/SC8_LinkTargetTeacher_D_${version}.dta", clear

** and merge pEducator
merge m:1 ID_e wave using "${datapath}/SC8_pEducator_D_${version}.dta", nogen keep(
  match)

** e76212y_D : Date of birth: year (categorized)
keep ID_t wave ID_e ID_cc e76212y_D


** ... now proceed as in the example of LinkTargetTeacher
bysort ID_t wave ID_cc (ID_e): gen teachernumber=_n
drop ID_e ID_cc
reshape wide e76212y_D, i(ID_t wave) j(teachernumber)

** save this temporarily ...
tempfile pEducator
save `pEducator'

** ... and merge it to CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear
merge 1:1 ID_t wave using `pEducator', nogen keep(master match)
label language en

** now have a look at the age distribution of teachers
sort e76212y_D5
list ID_t e76212y_D1 e76212y_D2 e76212y_D3 e76212y_D4 e76212y_D5 in 1/10
```

4.5.9 pInstitution

« go back to overview

Description

Context data collected from school management (principals)

File structure

long format: 1 row = 1 principal or school management person information in 1 wave

ID variables needed to identify a single row

ID_e wave

Other ID variables useful for linkage

ID_i

Number of variables / number of rows in file

195 / 556

Contains data from waves

1

Exemplary variables

ID_i	Institution ID
wave	Wave
hd0060a	Job satisfaction: work meaningful and important
hd00580	School profile: available
hd0101a	Type of special needs: learning
hd00580	School profile: available
hd0059c	School profile: new languages
hd0059d	School profile: humanistic ancient languages
hd01040	Full-day program
hd0101a	Type of special needs: learning

Exemplary data snapshot

ID_i	wave	hd0060a	hd00580	hd0059c
1005190	1	very often	1	specified
1005066	1	often	1	specified
1004982	1	often	1	specified
1005111	1	very often	1	specified
1005167	1	often	1	specified

This data file contains information collected from persons of the school management about the school. This concerns, for example, issues of school culture (h22208*/09*), the curriculum (h22224*), the pedagogical concept (h229030), extracurricular activities (h34021*-031*), school challenges (hd0053*) and the school profile (hd0059*), but also the composition of teaching staff and student body with regard to immigrant background (h451080/h451020). Other content refers to personal characteristics such as gender (h766111) and birth date (h76612*) as well as attitudes such as job satisfaction (hd0060*), occupational stress (hd0061*), and the importance of performance (hd0064*).

This dataset is not available in the Download version of the Scientific Use File.

In several cases, more than one person reported information about a single institution/school. The variable ID_e differentiates between the various informants within one school (ID_i).

To combine information from this data file with information from other data files, it is important to first consider the necessary data structure for the intended analysis. In many scenarios it makes sense to remove or aggregate information from informants on the same school before merging the data.

Stata 11: Working with pInstitution

```
** open the pInstitution file
** note that we operate on remote (_R)
use "${datapath}/SC8_pInstitution_R_${version}.dta", clear

** notice that multiple rows exist per school
** (the same questionnaire has been filled out by multiple educators/"headmasters")
duplicates report ID_i wave

** we reduce this to one row for each school.
** in this example, we only keep the data from the
** longest serving educator (h229823_R: Time working in profession: school)
bysort ID_i wave (h229823_R): keep if _n==_N

** save this temporarily ...
tempfile pInstitution
save `pInstitution'

** ... and merge it to CohortProfile
use "${datapath}/SC8_CohortProfile_R_${version}.dta", clear
merge m:1 ID_i wave using `pInstitution', nogen keep(master match)
label language en

** You now have school-dependent information for each respondent, e.g.
** check if for students in schools with the profile
** hd0059i: "School profile: theater/performing artist"
** parents have been surveyed
tab hd0059i tx80523
```

4.5.10 pParent

« go back to overview

Description

Data surveyed from parents/legal guardians

File structure

long format: 1 row = 1 parent in 1 wave

ID variables needed to identify a single row

ID_t wave

Other ID variables useful for linkage

ID_p

Number of variables / number of rows in file

417 / 3,267

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave	Wave
p731905	Professional position respondent
p731955	Professional position partner
p731701	Relationship respondent to target child
p741001	Household size
p400500_g1	Generation status
p73170y	Year of birth respondent
p731835	Course of study abroad respondent
p731912	Management position respondent

Exemplary data snapshot

ID_t	wave	p731905	p731955	p731701	p741001	p400500_g1
4086271	1	2	2	biological mother	4	9
4086821	1	2	1	biological mother	4	3
4087566	1	2	3	biological mother	4	6
4088281	1	2	5	biological father	5	3
4090497	1	5	5	biological mother	3	10

This data file contains the information collected from the parents or legal guardians of the target children. The topics surveyed cover personal characteristics of the responding person and the partner such as gender (p731707/p731122), year of birth (p73170y/p73175y), country of birth (p400000/p403000), marital status (p731110), educational qualification (p7318*), occupation (p7319*), but also health-related issues (e. g., smoking p5250*), political engagement (e. g., interest p516105) and cicic participation (e. g., memberships p51760*). Other topics are related to the household level such as size (p741001), monthly income (p510005), material deprivation (p74310*), and interaction language (p41203b). However, the majority of information relates to the target child: from birth (e. g., size and weight p52900*) and early childhood (e. g., breastfeeding p52620*) to current issues (e. g., self-rated health p521000) and to education-specific topics such as language learning (e. g., age at start of learning German p41002*), special educational needs (e. g., diagnosis pd01025), recommendation after elementary school (pd01016), parent-teacher cooperation (p221874) and various aspirations (e. g., idealistic highest school-leavaing qualification p31035a).

Stata 12: Working with pParent

```
** open the CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear

** merge occupation of parents (both respondent and partner) from pParent
merge 1:1 ID_t wave using "${datapath}/SC8_pParent_D_${version}.dta", ///
  keepusing(p731905 p731955) nogen assert(master match)

** change language to english (defaults to german)
label language en

** recode missings
nepsmiss p731905 p731955

** check the distribution of parents occupation in current type of school
tab2 p731905 p731955 tx80106
```

4.5.11 pTarget

« go back to overview

Description

Data surveyed from target children

File structure

long format: 1 row = 1 target in 1 wave

ID variables needed to identify a single row

ID_t wave

Other ID variables useful for linkage

none

Number of variables / number of rows in file

250 / 5,472

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave	Wave
t700032	Gender at birth
t70004y	Date of birth: year
t400000_g1R	Country of birth
t741002	Household size
t34007a	Cultural participation: high culture
t214211	Use of digital media at school: German
t22344a	Teaching quality - discipline: listening to teacher
t435000	Religion & religiousness: religiousness
t34005a	Number books

Exemplary data snapshot

ID_t	wave	t70004y	t741002	t34007a	t214211
4086630	1	2011	3	never	in some lessons
4088352	1	2012	4	once	never
4088677	1	2010	5	never	never
4089064	1	2011	4	2 to 3 times	never
4090717	1	2011	4	never	in some lessons

This data file contains the information collected from the target children on the basis of questionnaires. The topics surveyed cover personal characteristics such as gender (t700033), date of birth (t70004*), country of birth (t400000*), mother tongue (t414000*), sense of belonging (t4280*) and extracurricular activities (t26162*), but also household-related issues such as composition (t74305*). However, the majority of information relates to education-specific topics such as self-concept (t6600*), idealistic and realistic aspirations (e. g., highest school-leavaing qualification t31035a/f), tutoring (t26111*), use of digital media at school (t2142*), teaching quality (t22344*), motivation (t66409*) and parental involvement (t28165*–269*).

Stata 13: Working with pTarget

```
** open the CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear


** merge country of birth and generation status from pTarget
merge 1:1 ID_t wave using "${datapath}/SC8_pTarget_D_${version}.dta", ///
  keepusing(t400500_g1 t400000_g1D) nogen

** change language to english (defaults to german)
label language en

** recode missings
nepsmiss t400500_g1 t400000_g1D

** check the distribution between migration and current type of school
tab tx80106 t400000_g1D
```

4.5.12 TargetMethods

« go back to overview

Description

Paradata from the targets CASI interview

File structure

long format: 1 row = 1 target in 1 wave

ID variables needed to identify a single row

ID_t wave

Other ID variables useful for linkage

none

Number of variables / number of rows in file

35 / 6,141

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave	Wave
tx80201	Interview: survey mode (start)
tx80202	Interview: Survey mode (realized case)
tx80221	Interview: evaluable data set?
tx80400	Willingness: panel participation
tx82050_R	Tracking: special educational needs identified
tx82052_R	Tracking: SEN - learning
tx82060_R	Tracking: SEN - learning, speech, emotional and social development (LSD)
tx82072_R	Tracking: PPW - weakness in reading and spelling

Exemplary data snapshot

ID_t	wave	tx80201	tx80221	tx80400
4086103	1	CASI / TBT	does apply	yes
4087712	1	CASI / TBT	does apply	yes
4088347	1	CASI / TBT	does apply	yes
4089705	1	CASI / TBT	does apply	yes
4090303	1	CASI / TBT	does apply	yes

This dataset offers information on the data collection during the CASI interview with the target children in the school context. These include, for example, the realized survey mode (tx80202), the differentiated response code (px80207), or the given incentive (tx80210). Other information refer to the sampling frame such as federal state (tx80101_R) or municipality size (tx80102/tx80103) as well as to the tracking list such as transition recommendation to secondary school (tx82001) or special educational needs (tx820*_R).

Please note that this file contains all participating target children, whether an interview was realized or not. Thus, TargetMethods includes more cases than the data file pTarget. It is also important to know that the target ID (ID_t) is persistent across waves.

Stata 14: Working with TargetMethods

```
** open the data file
use "${datapath}/SC8_pTarget_D_${version}.dta", clear

** merge variable tx80210 "Interview: incentive (euro)" to data
merge 1:1 ID_t wave using "${datapath}/SC8_TargetMethods_D_${version}.dta", ///
        nogen keep(master match) keepusing(tx80210)

** change language to english (defaults to german)
label language en

** view incentive vs. household size
tab t741002 tx80210
```

4.5.13 Weights

« go back to overview

Description

Sample weights for various occasions

File structure

wide format: 1 row = 1 target

ID variables needed to identify a single row

ID_t

Other ID variables useful for linkage

ID_i

Number of variables / number of rows in file

11 / 6,141

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
ID_i	Identifier for the institution
sample	Sample the target person belongs to
stratum_exp	Explicit stratum (school type according to sampling frame)
w_i	Design weight for institution, calibrated
w_t_cal	Design weight for target, calibrated
w_t_cal_std	Design weight for target, calibrated and standardized
w_t1	Cross-sectional weight for targets participating in wave 1

Exemplary data snapshot

ID_t	ID_i	sample	stratum_exp	w_i	w_t_cal	w_t_cal_std
4088497	1005194	Main sample	1	3.52310	97.02894	0.78677
4087207	1005036	Main sample	1	5.28465	153.92938	1.24816
4087323	1005149	Main sample	4	3.67797	243.17569	1.97182
4089012	1005092	Main sample	6	2.90728	156.39508	1.26815
4088798	1005153	Main sample	1	5.28465	153.92938	1.24816

This dataset includes weighting variables (`w_`) as well as sample stratification characteristics (`stratum_`). Given the complex structure of the sample, there is no final recommendation at hand concerning the best use of the design weights (both for the schools as institutions and for the target children) or the cross-sectional weights (for participation per survey wave). More detailed information about weights estimation can be found in the wave-specific reports on "Samples, Weights and Nonresponse" as part of the data documentation (see Section 1.2).

Stata 15: Working with Weights

```
** open CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear

** merge Weights data
merge 1:1 ID_t using "${datapath}/SC8_Weights_D_${version}.dta", nogen keep(master
  match) keepusing(w_t_cal_std)

** you now have the variable w_t_cal_std available for further usage
```

4.5.14 xTargetCompetencies

« go back to overview

Description

Test data of target children at regular schools

File structure

wide format: 1 row = 1 target

ID variables needed to identify a single row

ID_t

Other ID variables useful for linkage

wave_w*

Number of variables / number of rows in file

223 / 5,429

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave_w1	Row contains data from wave 1 (2022/2023)
mag5d041_sc8g5_c	Mathematical competence: item 1
mag5_sc1	Mathematical competence: WLE (corrected)
reg5_sc1	Reading competence: WLE (corrected)
reg5_sc2	Reading competence: standard error of WLE (corrected)

Exemplary data snapshot

ID_t	wave_w1	mag5d041_sc8g5_c	mag5_sc1	reg5_sc1	reg5_sc2
4087411	1	1	0.17	1.45	0.77
4088269	1	1	1.60	0.14	0.50
4088820	1	1	1.88	1.96	0.75
4088919	1	1	2.66	1.56	0.64
4091004	1	1	2.40	2.41	0.75

The file `xTargetCompetencies` contains data from competence assessments conducted with the target children in **regular schools**. Scored item variables as well as scale variables are available in a cross-sectional format. Table 2 shows which competencies have been tested and when those testings have been conducted. In addition to the naming conventions for competence variables (see Section 3.2.2), the variables `wave_w*` are provided to select rows only containing competence data from a specific wave.

Stata 16: Working with xTargetCompetencies

```
** open datafile
use "${datapath}/SC8_xTargetCompetencies_D_${version}.dta", clear

** change language to english (defaults to german)
label language en

** as the 'x' in the filename indicates, this is a cross sectional file
** (no wave structure). You can verify this by asking if one row is
** solely identified by the respondents ID
isid ID_t

** note that competence testing has been conducted in multiple waves
** an indicator marks if a row contains information for a specific wave
tab1 wave_w*

** to work with competence data, you might want to merge it to CohortProfile.
** if you want to keep the panel logic (and not only add all competencies
** to every wave), you need a mergeable wave variable in xTargetCompetencies.
** in this example, we focus on math competencies, which have been tested in wave 1.
generate wave=1

** now, remove cases which did not take part in the testing
drop if wave_w1==0

** and reduce the dataset to the relevant variables
keep ID_t wave mag5_sc1 mag5_sc2

** save a temporary datafile
tempfile tmp
save `tmp'

** and merge this to CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear
merge 1:1 ID_t wave using `tmp', nogen
```

4.5.15 xTargetSpecialNeedsCompetencies

« go back to overview

Description

Test data of target children at special schools

File structure

wide format: 1 row = 1 target

ID variables needed to identify a single row

ID_t

Other ID variables useful for linkage

wave_w*

Number of variables / number of rows in file

86 / 212

Contains data from waves

1

Exemplary variables

ID_t	Identifier for target person
wave_w1	Row contains data from wave 1 (2022/2023)
nig50101_sc8g5_c	Non-verbal reasoning (figure classification): item 1
nig5_sc1	Non-verbal reasoning (figure classification): WLE (corrected)
reg50110_sc8g5_c	Reading competence: item 1
reg5_sc1	Reading competence: WLE (corrected)
reg5_sc2	Reading competence: standard error of WLE (corrected)

Exemplary data snapshot

ID_t	wave_w1	nig50101_sc8g5_c	nig5_sc1	reg50110_sc8g5_c	reg5_sc1
4091472	1	1	1.4283	1	2.00
4091496	1	1	0.2418	1	-0.02
4091517	1	1	1.0663	1	0.47
4091598	1	1	1.0663	1	0.22
4091640	1	1	2.5312	1	1.56

The file xTargetCompetencies contains data from competence assessments conducted with the target children in **special schools**. Scored item variables as well as scale variables are available in a cross-sectional format. Table 2 shows which competencies have been tested and when those testings have been conducted. In addition to the naming conventions for competence variables (see Section 3.2.2), the variables wave_w* are provided to select rows only containing competence data from a specific wave.

Stata 17: Working with xTargetSpecialNeedsCompetencies

```
** open datafile
use "${datapath}/SC8_xTargetSpecialNeedsCompetencies_D_${version}.dta", clear

** change language to english (defaults to german)
label language en

** as the 'x' in the filename indicates, this is a cross sectional file
** (no wave structure). You can verify this by asking if one row is
** solely identified by the respondents ID
isid ID_t

** note that competence testing has been conducted in multiple waves
** an indicator marks if a row contains information for a specific wave
tab1 wave_w*

** to work with competence data, you might want to merge it to CohortProfile.
** if you want to keep the panel logic (and not only add all competencies
** to every wave), you need a mergeable wave variable in xTargetCompetencies.
** in this example, we focus on Reading competence, which have been tested in wave 1.
generate wave=1

** now, remove cases which did not take part in the testing
drop if wave_w1==0

** and reduce the dataset to the relevant variables
keep ID_t wave reg5_sc1 reg5_sc2

** save a temporary datafile
tempfile tmp
save `tmp'

** and merge this to CohortProfile
use "${datapath}/SC8_CohortProfile_D_${version}.dta", clear
merge 1:1 ID_t wave using `tmp', nogen
```

5 Special Issues

5.1 Modules on education in pParent

The *education modules* for the responding parent and for their partner were redesigned in Starting Cohort 8 to reflect international as well as national educational classifications, in particular ISCED and CASMIN, also for those who obtained their highest educational attainment abroad. For this reason, a distinction was made in the survey instrument between German and foreign educational qualifications. There is one block with questions on a German educational qualification (for the responding parent: `p731831` to `p731834`; for their partner: `p731881` to `p731884`) and one block with questions on a foreign educational qualification (for the responding parent: `p731835` to `p731846`; for their partner: `p731885` to `p731896`). For the "German" block, the usual questions are asked to differentiate between school-leaving qualifications and vocational training or higher educational qualifications (see for example the demographic standards). The "foreign" block, however, avoids the use of answer categories that are typical for the German school and educational system as well as for the above-mentioned distinction. It is rather based on generally understandable questions that cover the highest educational qualification in other educational systems as precise as possible (see Schneider et al., 2023).

The first question of the education modules serves to identify whether the highest qualification achieved was a German qualification or a foreign qualification (for responding parent: `p731830`; for his or her partner: `p731880`). This initial question separates the two blocks. Nevertheless, it should be possible for the respondents to switch from one block to the other, as educational careers are diverse and not necessarily limited to one country only.

Unfortunately, a technical problem occurred in programming the instrument for the first survey wave. This prevented the intended "backward jump" from a subsequent block to a previous block. In order to solve this problem, the questions of the previous "German" block were copied and pasted again after the subsequent "foreign" block to enable the aforementioned switch. Answers to these "German" questions inserted at the end were – if available – automatically assigned to the original "German" questions at the beginning. Therefore, the copies of these questions available in the original field instrument are not included as additional variables in the Scientific Use File.

5.2 School history in pTarget

In the first survey wave in grade 5, previous school careers were recorded using an episodic approach in cases where the school currently attended was **not** the first school after the transition to lower secondary level and/or the grade had already been repeated. The episodic survey began when it was reported that the target child had already attended grade 5 before the point of measurement (td00103).

Although this type of episodic recording had been tested in advance, it could not be implemented within the given time frame due to primarily technical issues during the programming of the survey instrument. Also, content-related problems – e. g., the wording of question td00104, which was supposed to refer to the time in the 5th grade and not to the time after that – could not be corrected in due time, so that the instrument was used in its existing form at the beginning of the fieldwork.

In the course of checking the data from the first survey wave before the Scientific Use File was published, the data quality problems proved to be more serious than assumed at the beginning of the fieldwork. For this reason, the strategy used for the programming of the third survey wave has been applied **ex post** to the data of the first survey wave during the process of data editing.[11] This means that only the data from the first episode, i.e. the first school attended in grade 5 – along with some additional information – is available for use. This ensures comparability with the data collected in the third survey wave. The available information, which will be included in the Scientific Use File both for the first wave and later for the third wave, is as follows:

- td00104* "School history: comparing current school A"
- td00106 "School history: school attendance in Germany A"
- td00108* "School history: country of school"
- td00112* "Federal state/Municipality of school"
- td00115 "School history: school authority"
- td00116 "School history: pedagogical concept of the school"
- td00117/td00118* "School history: type of school" depending on the federal state specified (including open text answers)
- td00120/td00123* "School history: first school branch other school" (including open text answers for schools with school tracks)

[11] Similar problems or challenges that could not be solved in the available time frame also arose when programming the third wave of Starting Cohort 8 for the newly surveyed students in grade 7. A comparable episodic recording was planned for these persons. During the programming process, it was therefore decided to replace the episodic measurement with a simplified cross-sectional module with selected questions.

For the first wave – in contrast to the third wave – the variables relating to the same school, namely td00119 "School history: several school branches" and td00121 "School history: first school branch current school", are also published in the Scientific Use File.

Furthermore, the validity of the answers to the incorrectly formulated initial question has been checked by comparing and combining these answers with the responses of the students to the subsequent episode questions.[12] The result of this check is reflected in the recoded variable td00104_g1 in the Scientific Use File. If the provided information for the episode were contradictory, this variable has been coded with the value 3 "contradictory statements" and the subsequent variables were assigned the missing code –52 "implausible value removed".

Finally and according to the theoretical intention of the instrument, the variable td00106 "School history: school attendance in Germany" has been recoded with the value 1 "yes" if in variable td00104_g1 the answer "I was in the same school as now" was given. For these cases, the variable td00108 "School history: country of school" was additionally coded to "Germany".

[12] The episode information used for the consistency check are based on continuation of the school episode at the school or school track, reason for change to another school or to current school and school attendance in Germany.

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B Appendix

B.1 Release notes

Below you can find the *Release Notes* for the current Scientific Use File. They contain information on relevant data edition issues compared to the previous version of the Scientific Use File as well as information on data-related specifics and known problems at the time of the data publication. The *Release Notes* can also be downloaded from the documentation website of Starting Cohort 8 – as a text file with the complete history of data edition information on all Scientific Use File versions so far (see Section 1.2).

```
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**
** NEPS STARTING COHORT 8 - RELEASE NOTES
** Notes and Updates for SUF Version 1.0.0
** (doi:10.5157/NEPS:SC1:8.0.0)
**
===================================================


First release
        - detailed information on the preparation and handling of the data is provided
          in the *Data Manual* on the documentation website of Starting Cohort 8
        - further explanations on the sampling and the implementation of the surveys
          for the first panel wave can be found in the *Field Reports*

General note:
        - please report any problems or errors in the data at any time to the Research
          Data Center (FDZ-LIfBi: fdz@lifbi.de) - thank you very much
```