

NEPS

National Educational Panel Study

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Samples, Weights and Nonresponse

NEPS Starting Cohort 3 — Grade 5

*Paths Through Lower Secondary School —
Educational Pathways of Students in Grade 5
and Higher*

Wave 9

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Samples, Weights, and Nonresponse: the Sample of Starting Cohort 3 of the National Educational Panel Study (Wave 9)

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1. Prequel

This report complements NEPS Survey Paper No. 63 (Steinhauer & Zinn, 2016a) and gives details on Wave 9 of Starting Cohort 3 (SC3) of the National Educational Panel Study (NEPS). It refers to the Scientific Use File (SUF; DOI:10.5157/NEPS:SC3:9.0.0). SC3 focuses on students in Grade 5 and their pathway through lower secondary education. The original sample consists of a main sample of Grade 5 students in regular schools and special-needs schools with a supplement covering students with a migration background from Turkey and former Soviet Union. Due to the Federal-State-specific timing in transition in lower secondary education in regular schools a refreshment sample was drawn for students attending Grade 7.

To provide weights for the original samples as well as for the refreshment sample the different processes leading to the participation decision in a certain wave have to be considered. These decision processes include the schools initial decision to participate in the survey, the students initial decision to participate in the survey, and the students successive decisions to participate in each wave again. The schools initial decision to participate enters a nonresponse adjusted design weight on the institutional level. The students initial decision to participate enters a nonresponse adjusted design weight on the individual level. The successive decisions of a student to participate in a certain wave enter the corresponding wave-specific cross-sectional and longitudinal weights.

The students willing to participate in the panel study (i.e., the panel members) are followed up over time. In the progress of the panel it is possible that students cannot be surveyed within their institutional context for several reasons. For example, because they switch to another school, or because the school decides to refuse further cooperation. In these cases students are surveyed in an individual context, that is, the questionnaires are sent to their home address. Surveying students in this individual context is referred to as the field of individual retracking.

Table 1 illustrates the number of students according to the sample they originally belong to and their participation status by wave. The table gives details on the size of panel cohort over time. The column "Used sample" is split up into "Participants", "Temporary dropouts", and "Final dropouts (in wave)", giving the students status by the end of the wave. Finally, the last column gives the number of students withdrawing their panel consent between two rounds of survey waves.

For details on the sampling design and the derivation of design weights, see Steinhauer, Aßmann, Zinn, Goßmann, and Rässler (2015). Details on calculating wave-specific nonresponse adjustments can be found in Steinhauer and Zinn (2016a) for waves 1 to 3, in Steinhauer and Zinn (2016b) for waves 1 to 5, in Steinhauer (2017) for waves 6 and 7 and in Steinhauer (2019) for wave 8.

2. Changes compared to previous version

Weights for Wave 9 have been appended.

Table 1: Panel progress of SC3 by wave.

Wave (Time)	Study number	Sample	Panel Cohort			Status at the end of the wave			
			Total size	Not used	Used sample	Participants	Temporary dropout	Final dropout (in wave)	Final dropout (after wave)
1 (2010/2011)	A28, A56, A63	Main	6,112	0	6,112	5,774	338	0	13
2 (2011/2012)	A29, A57	Main	6,099	0	6,099	5,538	560	1	8
3 (2012/2013)	A30, A30A, A58	All	8,295	0	8,295	7,277	989	29	10
		Main	6,090	0	6,090	5,131	930	29	10
		Refr.	2,205	0	2,205	2,146	59	0	0
4 (2013/2014)	A31, A59	All	8,256	0	8,256	6,718	1,505	33	580
		Main	6,051	0	6,051	4,783	1,249	19	^a 580
		Refr.	2,205	0	2,205	1,935	256	14	0
5 (2014/2015)	A94	All	7,643	0	7,643	5,778	1,625	240	0
		Main	5,452	0	5,452	4,001	1,273	178	0
		Refr.	2,191	0	2,191	1,777	352	62	0
6 (Spring 2015)	A98	All	7,403	0	7,403	5,586	1,740	77	2
		Main	5,274	0	5,274	3,920	1,293	61	2
		Refr.	2,129	0	2,129	1,666	447	16	0
7 (2015/2016)	A99, B106	All	7,324	244	7,080	5,492	1,543	45	29
		Main	5,211	153	5,058	3,925	1,104	29	21
		Refr.	2,113	91	2,022	1,567	439	16	8
8 (2016/2017)	A100, B107	All	7,250	65	7,185	5,263	1,562	360	244
		Main	5,161	42	5,119	3,767	1,095	257	188
		Refr.	2,089	23	2,066	1,496	467	103	56
9 (2017/2018)	A101, B108	All	6,646	1	6,645	4,988	1,185	472	-
		Main	4,716	0	4,716	3,590	813	313	-
		Refr.	1,930	1	1,929	1,398	372	159	-

Note:^a: special-need students are excluded from the panel cohort after Wave 4. '-': information not yet available.

3. Participation in Wave 9

To account for the wave-specific participation decision of students response propensity re-weighting is used to provide corresponding weights. To model binary participation decisions a model with probit link function is used, see Steinhauer and Zinn (2016a) and Steinhauer and Zinn (2016b) for details. The coefficients for the estimated models are displayed in Table 2. By Wave 9 the panel cohort has reduced to 6,646 students, see Table 1. Like in Starting Cohort 4 of the NEPS students leave their schools and thus are surveyed individually. These students in individual retracking are less likely to participate compared to those who are surveyed in schools. This applies to both groups. Furthermore, having participated in previous waves significantly influences the participation decision in Wave 9 positively for both groups, where closer waves have a higher impact than waves that are further away. Students from the main sample have a higher propensity to participate, when their school was sampled from the set of schools educating students in grade 5 but none in grade 7 (compared to schools educating students in both grades). In addition, students with native languages other than German possess a lower probability to participate. Finally, students in both samples have a higher participation propensity when being part of the younger half of the age group compared to the older half.

Table 2: Models estimating the individual participation propensities for students in Wave 9 of SC3 used to derive adjustment factors for adjusted wave-specific cross-sectional and longitudinal weights.

	Wave 9	
	Main sample	Refreshment sample
(Intercept)	−0.450*** (0.096)	−0.646** (0.220)
Explicit stratum	0.293*** (0.082)	
Grade 5 but not Grade 7		
Age group	0.174*** (0.045)	0.159* (0.066)
younger half		
Student participated in	0.246*** (0.072)	0.453* (0.195)
Wave 3		
Student participated in	0.173** (0.060)	
Wave 6		
Student participated in	0.259*** (0.059)	0.252*** (0.077)
Wave 7		
Student participated in	1.063*** (0.053)	1.096*** (0.075)
Wave 8		
Student in individual retracking	−0.337*** (0.056)	−0.331*** (0.082)
yes		
Native language	−0.161* (0.070)	
Other than German		
Native language	−0.092 (0.152)	
Missing		
Number of students	4,543	1,930

Notes: Reference categories are: Explicit stratum (SC3: Grade 5 and Grade 7), Age group (older half), Native language (German), Student participated in Wave t (no), Student in individual retracking (no). Students who have left the general school system prematurely and are also retracked by infas institute. To model individual participation, the `glm` function with a probit link provided in R (R Core Team, 2018) was used. ***, **, and * denote significance at the 0.1%, 1%, and 5% level, respectively. Standard errors are given in parentheses.

4. Summary of Weights

Various kinds of weights for students together with design information are provided by NEPS. Table 3 summarizes the design information and the different weights provided by SUF release version DOI:10.5157/NEPS:SC3:9.0.0. Besides individual/target (ID_t) and institutional (ID_i) identifiers, design information for the entire cohort is made available.¹ This information covers the study number corresponding to the first survey in which a student had been surveyed, the explicit sampling strata (`stratum_exp`) as well as the implicit sampling strata. The implicit stratification variables are "school type" (`stratum_imp1`), "Federal States" (`stratum_imp2_R`), "regional classification" (`stratum_imp3_R`) and "funding" (`stratum_imp4_R`). Since release

¹Due to data protection, this information is not available in the download version of the SUF.

version 6.0.0 additional information has been added to the design data, namely the total number of students (tx80113_R) and classes (tx80114_R) in Grade 8 in school year 2013/2014 as reported by official statistics. Nonresponse adjusted design weights on the institutional (w_i) and the individual (w_t) level are given for the entire cohort.² For all participants in a particular wave, cross-sectional weights are provided. Data from Official Statistics (Statistisches Bundesamt, Fachserie 11, Reihe 1, 2010/11) regarding the gender ratio in different school types of different Federal States has been used for raking.

Table 3: Variables included in the weighting data of SC3 SUF version 9.0.0

Variable	Applies to	Content
<i>Identifier</i>		
ID_t	8,317	Identifier for target person (students)
ID_i	8,317	Identifier for the institution (377 schools)
<i>Design information</i>		
tstud_st	8,317	Study number the target person was first surveyed in (A28, A56, A63, A30A)
sample	8,317	Part of the sample the target person belongs to
stratum_exp	8,317	Explicit sampling stratum referring to the school
stratum_imp1	8,317	Implicit sampling stratum (school type according to sampling frame)
stratum_imp2_R	8,317	Implicit sampling stratum (Federal State the school is located in according to sampling frame)
stratum_imp3_R	8,317	Implicit sampling stratum (regional classification according to sampling frame)
stratum_imp4_R	8,317	Implicit sampling stratum (funding according to sampling frame)
tx80113_R	8,317	Total number of students in grade 8 as reported by official statistics
tx80114_R	8,317	Total number of classes in grade 8 as reported by official statistics
<i>Design weights adjusted for initial nonresponse</i>		
w_i	8,317	Weight for institution
w_t	8,317	Weight for target
w_t_cal	5,283	Weight for target, calibrated
w_t3_cal	8,054	Weight for targets in Wave 3, calibrated
<i>Weights adjusted for wave-specific nonresponse, standardized</i>		
w_t1	5,555	Cross-sectional weight for targets participating in Wave 1
w_t2	5,330	Cross-sectional weight for targets participating in Wave 2
w_t3	7,111	Cross-sectional weight for targets participating in Wave 3
w_t4	6,581	Cross-sectional weight for targets participating in Wave 4
w_t5	5,648	Cross-sectional weight for targets participating in Wave 5
w_t6	5,465	Cross-sectional weight for targets participating in Wave 6

²The institutional weight as well as the explicit and implicit stratification variables belong to the institution and thus are equal for all cases within the institution.

Table 3: Variables included in the weighting data of SC3 SUF version 9.0.0

Variable	Applies to	Content
w_t7	5,367	Cross-sectional weight for targets participating in Wave 7
w_t8	5,139	Cross-sectional weight for targets participating in Wave 8
w_t9	4,870	Cross-sectional weight for targets participating in Wave 9
w_t12	5,068	Longitudinal weight for targets participating in Wave 1 and 2
w_t123	4,513	Longitudinal weight for targets participating in Wave 1, 2, and 3
w_t1234	4,026	Longitudinal weight for targets participating in Wave 1, 2, 3, and 4
w_t12345	3,203	Longitudinal weight for targets participating in Wave 1, 2, 3, 4, and 5
w_t123456	2,919	Longitudinal weight for targets participating in Wave 1, 2, 3, 4, 5, and 6
w_t1234567	2,604	Longitudinal weight for targets participating in Wave 1, 2, 3, 4, 5, 6, and 7
w_t12345678	2,228	Longitudinal weight for targets participating in Wave 1, 2, 3, 4, 5, 6, 7, and 8
w_t123456789	1,947	Longitudinal weight for targets participating in Wave 1, 2, 3, 4, 5, 6, 7, 8, and 9
w_t34	6,288	Longitudinal weight for targets participating in Wave 3 and 4
w_t345	5,119	Longitudinal weight for targets participating in Wave 3, 4, and 5
w_t3456	4,601	Longitudinal weight for targets participating in Wave 3, 4, 5, and 6
w_t34567	4,027	Longitudinal weight for targets participating in Wave 3, 4, 5, 6, and 7
w_t345678	3,361	Longitudinal weight for targets participating in Wave 3, 4, 5, 6, 7, and 8
w_t3456789	2,889	Longitudinal weight for targets participating in Wave 3, 4, 5, 6, 7, 8, and 9
<i>Weights for targets and parents adjusted for wave-specific nonresponse, standardized</i>		
w_tp1	3,550	Cross-sectional weight for joint participation in Wave 1
w_tp2	3,307	Cross-sectional weight for joint participation in Wave 2
w_tp3	4,248	Cross-sectional weight for joint participation in Wave 3
w_tp4	2,621	Cross-sectional weight for joint participation in Wave 4
w_tp6	2,776	Cross-sectional weight for joint participation in Wave 6
w_tp12	3,042	Longitudinal weight for joint participation in Wave 1 and 2
w_tp123	2,544	Longitudinal weight for joint participation in Wave 1, 2, and 3
w_tp1234	2,107	Longitudinal weight for joint participation in Wave 1, 2, 3, and 4

Table 3: Variables included in the weighting data of SC3 SUF version 9.0.0

Variable	Applies to	Content
w_tp12346	1,511	Longitudinal weight for joint participation in Wave 1, 2, 3, and 6
w_tp34	3,404	Longitudinal weight for joint participation in Wave 3 and 4
w_tp346	2,298	Longitudinal weight for joint participation in Wave 3, 4, and 6

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