

The logo for NEPS (National Educational Panel Study) features the acronym 'NEPS' in a bold, blue, sans-serif font. To the left of the text is a stylized orange bracket shape that partially encloses the letters.

NEPS

National Educational Panel Study

Research Data

Ariane Würbach

Samples, Weights and Nonresponse

NEPS Starting Cohort 5 — First-Year Students
From Higher Education to the Labor Market

Wave 14

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Samples, Weights, and Nonresponse: Wave 14 of the Student Sample of the National Educational Panel Study

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Samples, Weights, and Nonresponse: Wave 14 of the Student Sample of the National Educational Panel Study

1 Summary of Study

This report refers to Wave 14 of the Scientific Use File (SUF) of the survey “first-year undergraduate students in higher education in 2011” (Starting Cohort 5) conducted within the National Educational Panel Study (NEPS). The current SUF 14.0.0 of the First-Year Students sample is available online at [DOI:10.5157/NEPS:SC5:14.0.0](https://doi.org/10.5157/NEPS:SC5:14.0.0).¹ This paper supplements the previous NEPS Survey Paper by Zinn, Steinhauer, and Aßmann (2017) as well as the Wave 9 up to Wave 13 weighting documentations (Würbach, 2020; Zinn, 2017, 2018a, 2018b, 2019), which give detailed information on the applied sampling procedure, the derivation of design weights, their successive adjustments, and the derivation of panel weights for all of the previous waves.

Table 1 summarizes the study numbers, the survey modes, the periods of the studies as well as the numbers of participants in each panel wave available in the current SUF. The studies B52 (Wave 1), B55 (Wave 3), B59 (Wave 5), B94 (Wave 7), B111 (Wave 9), B112 (Wave 10), and B138 (Wave 13) were conducted via computer-assisted telephone interviews (CATIs). The studies B54 (Wave 2), B56 (Wave 4), B58 (Wave 6), B95 (Wave 8), B113 (Wave 11), and B139 (Wave 14) are online surveys. The study B53 (Wave 1 Test) involves competence tests that have been conducted in parallel to the telephone interviews of the B52 study. In study B114 (Wave 12) a mixed mode design was applied: participants could chose between being interviewed and tested via CATI/CAWI or CAPI. For each wave weights are available for those persons that participated in an interview. Weights for persons participating in competence tests are only available for Wave 1 (i.e. study B53). No weights are provided for persons who attended the competence tests in Wave 5 (study B57), Wave 7 (study B90), and Wave 12 (study B114). Table 2 gives the wave-specific number of participants, temporary dropouts, and final drop-outs in and after the survey.

¹For general information on the NEPS, see Blossfeld, Roßbach, and von Maurice (2011). More detailed information is available in the documentation section on the [homepage](#).

Table 1: Attribution of studies to panel waves.

| Wave | Study number | Survey Time |
|-------------|---------------------|---------------------------|
| Wave 1 | B52 CATI | Winter 2010/11 |
| Wave 1 Test | B53 Test | Winter 2010/11 |
| Wave 2 | B54 CAWI | Autumn 2011 |
| Wave 3 | B55 CATI | Spring 2012 |
| Wave 4 | B56 CAWI | Autumn 2012 |
| Wave 5 | B59 CATI | Spring/Summer 2013 |
| Wave 5 Test | B57 Test | Spring/Summer 2013 |
| Wave 6 | B58 CAWI | Autumn 2013 |
| Wave 7 | B94 CATI | Summer 2014 |
| Wave 7 Test | B90 Test | Winter/Spring 2014 |
| Wave 8 | B95 CAWI | Autumn 2014 |
| Wave 9 | B111 CATI | Spring/Summer 2015 |
| Wave 10 | B112 CATI | Spring/Summer 2016 |
| Wave 11 | B113 CAWI | Autumn 2016 |
| Wave 12 | B114 CAWI | Spring/Summer/Autumn 2017 |
| Wave 13 | B138 CATI | Spring/Summer 2018 |
| Wave 14 | B139 CAWI | Autumn 2018 |

2 Panel progress

The following Table 2 details the panel progress of Starting Cohort 5 by differentiating participants, temporary dropouts, and final dropouts for each group separately and in total. Final dropouts are separated into final dropouts due to refusal during the survey period and final dropouts between two consecutive waves.

Table 2: Panel progress of Starting Cohort 5 by wave.

| Wave | Sub-sample | Panel Cohort | | Status at the end of the wave | | | | |
|------|--------------|--------------|--------------|-------------------------------|--------------------------|--------------------|-----------------------------|----------------------------|
| | | Panel sample | Gross sample | Participants | Participation proportion | Temporary dropouts | Final dropout (within wave) | Final dropout (after wave) |
| 1 | Total | - | 31082 | 17910 | 0.576 | 0 | 13172 | 0 |
| | LA | - | 7864 | 5555 | 0.706 | 0 | 2309 | 0 |
| | UNI | - | 11904 | 8024 | 0.674 | 0 | 3880 | 0 |
| | FH | - | 7460 | 3894 | 0.522 | 0 | 3566 | 0 |
| | PR | - | 3854 | 437 | 0.113 | 0 | 3417 | 0 |
| 1T | Total | 17910 | 17910 | 5949 | 0.332 | 11942 | 19 | 0 |
| | LA | 5555 | 5555 | 2021 | 0.364 | 3527 | 7 | 0 |
| | UNI | 8024 | 8024 | 2715 | 0.338 | 5304 | 5 | 0 |
| | FH | 3894 | 3894 | 1115 | 0.286 | 2772 | 7 | 0 |
| | PR | 437 | 437 | 98 | 0.224 | 339 | 0 | 0 |
| 2 | Total | 17891 | 17891 | 12273 | 0.686 | 5591 | 27 | 13 |
| | LA | 5548 | 5548 | 3839 | 0.692 | 1701 | 8 | 2 |
| | UNI | 8019 | 8019 | 5609 | 0.699 | 2395 | 15 | 8 |
| | FH | 3887 | 3887 | 2510 | 0.646 | 1374 | 3 | 3 |
| | PR | 437 | 437 | 315 | 0.721 | 121 | 1 | 0 |
| 3 | Total | 17851 | 17851 | 13113 | 0.735 | 4558 | 180 | 31 |
| | LA | 5538 | 5538 | 4253 | 0.768 | 1234 | 51 | 9 |
| | UNI | 7996 | 7996 | 5841 | 0.730 | 2077 | 78 | 10 |
| | FH | 3881 | 3881 | 2701 | 0.696 | 1135 | 45 | 10 |
| | PR | 436 | 436 | 318 | 0.729 | 112 | 6 | 2 |
| 4 | Total | 17640 | 17640 | 11202 | 0.635 | 6424 | 14 | 19 |
| | LA | 5478 | 5478 | 3695 | 0.675 | 1780 | 3 | 2 |
| | UNI | 7908 | 7908 | 5003 | 0.633 | 2899 | 6 | 12 |
| | FH | 3826 | 3826 | 2219 | 0.580 | 1602 | 5 | 5 |
| | PR | 428 | 428 | 285 | 0.666 | 143 | 0 | 0 |

Table 2: Panel progress of Starting Cohort 5 by wave.

| Wave | Sub-sample | Panel Cohort | | Status at the end of the wave | | | | |
|------|---------------|--------------|--------------|-------------------------------|--------------------------|--------------------|-----------------------------|----------------------------|
| | | Panel sample | Gross sample | Participants | Participation proportion | Temporary dropouts | Final dropout (within wave) | Final dropout (after wave) |
| 5 | Total | 17607 | 17607 | 12694 | 0.721 | 4620 | 293 | 3 |
| | LA | 5473 | 5473 | 4186 | 0.765 | 1215 | 72 | 0 |
| | UNI | 7890 | 7890 | 5615 | 0.712 | 2149 | 126 | 0 |
| | FH | 3816 | 3816 | 2582 | 0.677 | 1145 | 89 | 3 |
| | PR | 428 | 428 | 311 | 0.727 | 111 | 6 | 0 |
| 5T | Total | 17311 | 17311 | 8767 | 0.506 | 8538 | 6 | 60 |
| | LA | 5401 | 5401 | 2907 | 0.538 | 2493 | 1 | 17 |
| | UNI | 7764 | 7764 | 3963 | 0.510 | 3799 | 2 | 30 |
| | FH | 3724 | 3724 | 1687 | 0.453 | 2035 | 2 | 10 |
| | PR | 422 | 422 | 210 | 0.498 | 211 | 1 | 3 |
| 6 | Total | 17245 | 17245 | 10183 | 0.590 | 7041 | 21 | 6 |
| | LA | 5383 | 5383 | 3352 | 0.623 | 2028 | 3 | 1 |
| | UNI | 7732 | 7732 | 4594 | 0.594 | 3124 | 14 | 4 |
| | FH | 3712 | 3712 | 1975 | 0.532 | 1733 | 4 | 1 |
| | PR | 418 | 418 | 262 | 0.627 | 156 | 0 | 0 |
| 7T | Gesamt | 17218 | 600 | 339 | 0.565 | 237 | 24 | 3 |
| | LA | 5379 | 57 | 38 | 0.667 | 19 | 0 | 1 |
| | UNI | 7714 | 343 | 202 | 0.589 | 127 | 14 | 1 |
| | FH | 3707 | 158 | 77 | 0.487 | 72 | 9 | 1 |
| | Privat | 418 | 42 | 22 | 0.524 | 19 | 1 | 0 |
| 7 | Total | 17191 | 14465 | 9611 | 0.664 | 4432 | 422 | 2104 |
| | LA | 5378 | 2653 | 1924 | 0.725 | 666 | 63 | 564 |
| | UNI | 7699 | 7698 | 5133 | 0.667 | 2382 | 183 | 976 |
| | FH | 3697 | 3697 | 2277 | 0.616 | 1264 | 156 | 519 |
| | PR | 417 | 417 | 277 | 0.664 | 120 | 20 | 45 |

Table 2: Panel progress of Starting Cohort 5 by wave.

| Wave | Sub-sample | Panel Cohort | | Status at the end of the wave | | | | |
|------|--------------|--------------|--------------|-------------------------------|--------------------------|--------------------|-----------------------------|----------------------------|
| | | Panel sample | Gross sample | Participants | Participation proportion | Temporary dropouts | Final dropout (within wave) | Final dropout (after wave) |
| 8 | Total | 14665 | 14665 | 8629 | 0.588 | 6025 | 11 | 1 |
| | LA | 4751 | 4751 | 2933 | 0.617 | 1817 | 1 | 0 |
| | UNI | 6540 | 6540 | 3945 | 0.603 | 2588 | 7 | 0 |
| | FH | 3022 | 3022 | 1546 | 0.512 | 1473 | 3 | 1 |
| | PR | 352 | 352 | 205 | 0.582 | 147 | 0 | 0 |
| 9 | Total | 14653 | 14653 | 10096 | 0.689 | 4323 | 234 | 920 |
| | LA | 4750 | 4750 | 3430 | 0.722 | 1252 | 68 | 276 |
| | UNI | 6533 | 6533 | 4522 | 0.692 | 1937 | 74 | 411 |
| | FH | 3018 | 3018 | 1898 | 0.629 | 1039 | 81 | 214 |
| | PR | 352 | 352 | 246 | 0.699 | 95 | 11 | 19 |
| 10 | Total | 13499 | 13499 | 9090 | 0.673 | 4191 | 218 | 1208 |
| | LA | 4406 | 4406 | 3072 | 0.697 | 1275 | 59 | 457 |
| | UNI | 6048 | 6048 | 4149 | 0.686 | 1818 | 81 | 452 |
| | FH | 2723 | 2723 | 1650 | 0.606 | 1001 | 72 | 276 |
| | Privat | 322 | 322 | 219 | 0.680 | 97 | 6 | 23 |
| 11 | Total | 12073 | 12073 | 7020 | 0.581 | 5042 | 11 | 7 |
| | LA | 3890 | 3890 | 2232 | 0.574 | 1654 | 4 | 2 |
| | UNI | 5515 | 5515 | 3396 | 0.616 | 2116 | 3 | 4 |
| | FH | 2375 | 2375 | 1225 | 0.516 | 1146 | 4 | 1 |
| | Privat | 293 | 293 | 167 | 0.570 | 126 | 0 | 0 |
| 12 | Total | 12055 | 12055 | 8551 | 0.709 | 3042 | 462 | 726 |
| | LA | 3884 | 3884 | 2866 | 0.738 | 889 | 129 | 126 |
| | UNI | 5508 | 5508 | 3903 | 0.709 | 1411 | 194 | 367 |
| | FH | 2370 | 2370 | 1576 | 0.665 | 666 | 128 | 218 |
| | Privat | 293 | 293 | 206 | 0.703 | 76 | 11 | 15 |

Table 2: Panel progress of Starting Cohort 5 by wave.

| Wave | Sub-sample | Panel Cohort | | Status at the end of the wave | | | | |
|------|--------------|--------------|--------------|-------------------------------|--------------------------|--------------------|-----------------------------|----------------------------|
| | | Panel sample | Gross sample | Participants | Participation proportion | Temporary dropouts | Final dropout (within wave) | Final dropout (after wave) |
| 13 | Total | 10867 | 10867 | 7293 | 0.671 | 3316 | 258 | 708 |
| | LA | 3629 | 3629 | 2418 | 0.666 | 1122 | 89 | 250 |
| | UNI | 4947 | 4947 | 3392 | 0.686 | 1451 | 104 | 294 |
| | FH | 2024 | 2024 | 1296 | 0.640 | 670 | 58 | 147 |
| | Privat | 267 | 267 | 187 | 0.700 | 73 | 7 | 17 |
| 14 | Total | 9901 | 9901 | 5161 | 0.521 | 4733 | 7 | 4 |
| | LA | 3290 | 3290 | 1673 | 0.509 | 1615 | 2 | 2 |
| | UNI | 4549 | 4549 | 2479 | 0.545 | 2066 | 4 | 1 |
| | FH | 1819 | 1819 | 881 | 0.484 | 937 | 1 | 1 |
| | Privat | 243 | 243 | 128 | 0.527 | 115 | 0 | 0 |

Notes: (i) LA: students in teacher education, UNI: students at public university without LA, FH: students at public universities of applied science, PR: students at private universities, (ii) 'T' indicates testing, (iii) Discrepancies between the sizes of the gross and the panel cohort samples are due to the short time periods available between forming the wave-specific gross samples and recording all the final drop-outs from previous waves. In some cases, the study of the previous wave was still running while the next wave-specific study already started.

3 Weighting Adjustments for Wave Participation

To mirror the recruitment and participation process within the weighting adjustments, consecutive modeling of the decision and participation process is performed. The first step in this process corresponds to the sampling of universities and fields of study, and to the recruitment of students. Here, design weights compensate for unequal selection probabilities and selectivity due to initial nonresponse. Then, starting from Wave 2, nonresponse adjusted design weights are derived for each wave. For this purpose, logistic regression models are used. On their basis nonresponse models are estimated and participation probabilities are predicted. These are used as adjustment factors to derive cross-sectional and longitudinal survey weights. The results of the analyses corresponding to the initial wave and all subsequent waves until Wave 8 are given in Zinn et al. (2017), for Wave 9 in Zinn (2017), for Wave 10 in Zinn (2018a), for Wave 11 in Zinn (2018b), for Wave 12 in Zinn (2019), and for Wave 13 in Würbach (2020). In Zinn et al. (2017) also the procedures applied to derive design weights as well as the cross-sectional and longitudinal survey weights is described. Table 3 shows the estimated model for Wave 14. Previous wave participation, measured as frequency, is still the primary factor in explaining current participation behavior. The more often a person participated in previous waves the higher is the probability for participation in the current wave.² Also students with upper medium and high reading competence in Wave 1 have significant higher participation propensities compared to their counterparts. On the opposite, students with migration background (generation status lower or equal than 3) have a lower probability for participation (measured on the basis of the panel cohort at start, N=17,910).

²The associated variable is coded as follows: always/very often (participation in thirteen to eleven waves), often (participation in at least half of the waves), seldom (otherwise).

Table 3: Modeling Participation in Wave 14 (i.e., Study B139).

| Variable | Reference Category | Estimate | SE |
|---------------------------------|----------------------------|-----------|-------|
| Participation in previous waves | always/very often | | |
| often | | -1.893*** | 0.044 |
| seldom | | -5.536*** | 0.143 |
| University | no | | |
| yes | | 0.114 | 0.062 |
| Gender | female | | |
| male | | 0.027 | 0.048 |
| Teacher Education | no | | |
| yes | | -0.096 | 0.056 |
| Funding | private | | |
| public | | -0.003 | 0.142 |
| Field of Study | Field 9 | | |
| Field 1 | | -0.243 | 0.179 |
| Field 2 | | -0.108 | 0.068 |
| Field 3 | | -0.075 | 0.062 |
| Field 4 | | -0.227* | 0.104 |
| Field 5 | | 0.224 | 0.402 |
| Field 6 | | -0.235 | 0.161 |
| Field 7 | | -0.263** | 0.083 |
| Field 8 | | 0.024 | 0.143 |
| Reading Competence Wave 1 | low | | |
| lower medium | | -0.008 | 0.095 |
| upper medium | | 0.219* | 0.091 |
| high | | 0.218* | 0.092 |
| missing | | -0.055 | 0.070 |
| Region | East | | |
| West | | -0.007 | 0.054 |
| Educational Attainment Mother | 1a, 1b, 2b | | |
| 1c, 2a | | -0.034 | 0.099 |
| 2a | | -0.082 | 0.109 |
| 3a, 3b | | -0.035 | 0.140 |
| missing | | 0.024 | 0.108 |
| Educational Attainment Father | 1a, 1b, 2b | | |
| 1c, 2a | | 0.074 | 0.125 |
| 2a | | 0.085 | 0.135 |
| 3a, 3b | | 0.143 | 0.140 |
| missing | | 0.152 | 0.129 |
| Birth Year | < 1989 | | |
| 1989/90 | | -0.021 | 0.056 |
| > 1990 | | 0.067 | 0.064 |
| Migration Background | generation status ≥ 3 | | |
| generation status < 3 | | -0.137* | 0.064 |
| Sample size | 17,907 ^a | | |

Notes: ^a Three of the 17910 students of the Wave 1 panel cohort were abroad at panel start. Thus, per definition they are not part of the SC5 target population.

***, **, and * denote significance at the 0.1%, 1%, and 5% level, respectively.

4 Summary of Weights

Table 4 lists the types of weights provided for SUF release version 14-0-0 and Table 5 gives some summary statistics of the weights provided. All weights are provided in a trimmed and standardized form. For Wave 1, additionally a set of extrapolated cross-sectional weights is given allowing extrapolating sample distributions to the population level of first-year students in the winter semester 2010/2011 according to the field of study, institution type, sex, nationality, and kind of funding. No general recommendation for the usage of sampling weights can be given. However, some advices are given in Zinn et al. (2017) and in Zinn, Würbach, Steinhauer, and Hammon (2018).

Table 4: Types of weights provided.

| Type of weight | Label |
|---|--------------|
| Weights of strata | w_h |
| Weights of students participating in B52 | w_t1 |
| Weights (extrapolated) of students participating in B52 | w_t1ext |
| Weights of students participating in B53 | w_t1comp |
| Weights of students participating in B54 | w_t2 |
| Weights of students participating in B55 | w_t3 |
| Weights of students participating in B56 | w_t4 |
| Weights of students participating in B59 | w_t5 |
| Weights of students participating in B58 | w_t6 |
| Weights of students participating in B94 | w_t7 |
| Weights of students participating in B111 | w_t9 |
| Weights of students participating in B112 | w_t10 |
| Weights of students participating in B113 | w_t11 |
| Weights of students participating in B114 | w_t12 |
| Weights of students participating in B138 | w_t13 |
| Weights of students participating in B139 | w_t14 |
| Weights of students participating in all online studies | w_allCAWI |
| Weights of students participating in the telephone interviews | w_allCATI |
| Weights of students participating in all studies so far | w_allWaves |

Table 5: Summary statistics for all weights provided.

| Label of weight | Cases | Min. | Lower Quart. | Median | Mean | Upper Quart. | Max. |
|-----------------|---------------------|-------|--------------|--------|--------|--------------|---------|
| w_h | 11,541 | 1.667 | 1.667 | 6.286 | 4.764 | 6.286 | 6.366 |
| w_t1 | 17,907 | 0.009 | 0.329 | 0.997 | 1.000 | 1.328 | 3.386 |
| w_t1ext | 17,907 | 0.174 | 6.020 | 18.272 | 18.470 | 24.327 | 325.273 |
| w_t1comp | 5,949 | 0.146 | 0.302 | 0.825 | 1.000 | 1.299 | 4.134 |
| w_t2 | 12,271 ^a | 0.009 | 0.348 | 0.920 | 1.000 | 1.331 | 3.679 |
| w_t3 | 13,110 ^b | 0.008 | 0.308 | 0.875 | 1.000 | 1.275 | 3.917 |
| w_t4 | 11,200 ^a | 0.008 | 0.308 | 0.835 | 1.000 | 1.277 | 4.117 |
| w_t5 | 12,691 ^b | 0.009 | 0.302 | 0.871 | 1.000 | 1.269 | 4.012 |
| w_t6 | 10,182 ^c | 0.017 | 0.319 | 0.798 | 1.000 | 1.277 | 4.257 |
| w_t7 | 9,609 ^a | 0.007 | 0.577 | 0.795 | 1.000 | 1.125 | 3.802 |
| w_t8 | 8,628 ^c | 0.011 | 0.272 | 0.752 | 1.000 | 1.147 | 4.671 |
| w_t9 | 10,095 ^c | 0.008 | 0.324 | 0.842 | 1.000 | 1.253 | 4.118 |
| w_t10 | 9,089 ^c | 0.008 | 0.281 | 0.805 | 1.000 | 1.184 | 4.367 |
| w_t11 | 7,019 ^c | 0.009 | 0.349 | 0.748 | 1.000 | 1.203 | 4.403 |
| w_t12 | 8,549 ^a | 0.008 | 0.297 | 0.836 | 1.000 | 1.293 | 4.225 |
| w_t13 | 7,292 ^a | 0.008 | 0.309 | 0.787 | 1.000 | 1.285 | 4.280 |
| w_t14 | 5,160 ^a | 0.009 | 0.402 | 0.712 | 1.000 | 1.144 | 4.494 |
| w_allCAWI | 2,976 ^c | 0.044 | 0.287 | 0.591 | 1.000 | 1.098 | 5.046 |
| w_allCATI | 3,776 ^c | 0.015 | 0.362 | 0.558 | 1.000 | 1.031 | 4.924 |
| w_allWaves | 1,529 ^c | 0.136 | 0.475 | 0.761 | 1.000 | 1.281 | 3.906 |

Notes: ^aFor two of the participants no weights are provided since they studied abroad at panel start (in Wave 1). For them no calibrated weights can be derived. ^bFor three of the participants no weights are provided since they studied abroad at panel start (in Wave 1). ^cFor one participant no weight is provided since she/he studied abroad at panel start (in Wave 1). For her/him no calibrated weight can be derived.

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