

Beginning Postsecondary Students (BPS) Longitudinal Study

Website: <https://nces.ed.gov/surveys/bps/>

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1. OVERVIEW

The Beginning Postsecondary Students (BPS) Longitudinal Study was implemented in 1990 to complement the NCES longitudinal studies of high school cohort collections. BPS improved data collected on students in postsecondary education. Four longitudinal studies compose BPS, each starting with a specific cross-sectional sample of students attending postsecondary education from the 1990, 1996, 2004, or 2012 National Postsecondary Student Aid Study (NPSAS) samples. NPSAS regularly collects financial aid and other data on nationally representative cross-sectional samples of postsecondary students (see the NPSAS chapter). Each BPS collection draws its cohort from the NPSAS sample, which serves as the base-year data for that BPS collection. In the base year, first-time beginning (FTB) postsecondary students are identified. Then there are two subsequent follow-ups collecting data on postsecondary education and workforce experiences. The cross-sectional base year includes BPS sample members who are nontraditional students as well as traditional students and is, therefore, representative of *all* beginning students in postsecondary education.

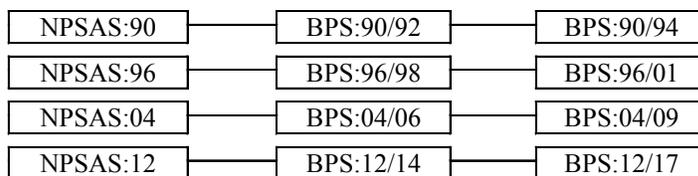
Figure BPS-1 depicts the four BPS cohort collections to date. The first BPS collection included a subset of NPSAS:90 respondents who began their postsecondary education in the 1989–90 academic year. The second BPS collection included a subset of NPSAS:96 respondents who began their postsecondary education in 1995–96. The third BPS collection included a subset of NPSAS:04 respondents who began their postsecondary education in the 2003–04 academic year. The current BPS collection includes a subset of NPSAS:12 respondents who began their postsecondary education in the 2011–12 academic year. A follow-up data collection was conducted in 2014, and a second follow-up occurred in 2017.

LONGITUDINAL SAMPLE SURVEY OF FIRST-TIME BEGINNING POSTSECONDARY STUDENTS, INCLUDING BOTH TRADITIONAL AND NONTRADITIONAL STUDENTS

BPS includes:

- Base-year NPSAS data
- Student interviews
- Financial aid records

Figure BPS-1. The four BPS cohort collections: NPSAS base year and successive follow-ups



NOTE: BPS is the Beginning Postsecondary Students Longitudinal Survey; NPSAS is the National Postsecondary Student Aid Study.

Purpose

By starting with a cohort whose members have already entered postsecondary education, and then gathering data every 2 to 3 years for up to 6 years, BPS can describe to what extent, if any, students who start their postsecondary education later in life differ in progress, persistence, and attainment from students who start earlier. In addition to student data, BPS collects federal financial aid records covering the entire undergraduate period, providing comprehensive information on progress and persistence in school.

Components

For each BPS collection, the NPSAS cross-sectional representative sample of postsecondary students serves as the sampling frame for BPS and provides the base year data for BPS. Included in the base year data are student aid information from the U.S. Department of Education's Federal Student Aid Central Processing System (CPS), the National Student Loan Data System (NSLDS), and program data files, such as from Pell and other grant programs. Other administrative data are obtained from sources such as the National Student Clearinghouse.

Base-Year Data (from NPSAS). Base-year data for BPS cohort studies are obtained in NPSAS from students, parents (in the first and second cohort studies only), institutional records, and Department of Education financial aid records. These data cover major field of study; type and control of institution; financial aid; cost of attendance; age; sex; race/ethnicity; family income; reasons for school selection; current marital status; employment and income; community service; background and preparation for college; college experience; future expectations; and parents' level of education, income, and occupation.

Successive Follow-Up Data Collections. Data are collected for each BPS collection 2 years and 4 to 5 years after the NPSAS base year data collection, corresponding to 3 years and 5 to 6 years after entering postsecondary education. Data was also collected through the NSLDS in a federal student aid supplement for two cohorts in 2015. Data are obtained from student interviews and financial aid records to describe the sample member's years in school; persistence in enrollment; academic progress; degree attainment; changes in field of study; institution transfers; education-related experiences; current family status; expenses and financial aid; employment and income; employment-related training; community service; civic participation; and future expectations.

The first BPS collection obtained data in spring 1992 (BPS:90/92) and in spring 1994 (BPS:90/94). BPS:90/92 focused on continued education and experience, employment and financing, educational aspirations, and

family formation. BPS:90/94 focused on continuing education experiences and financing, including degree attainment and graduate/professional school access; employment experiences; educational and employment aspirations; and family formation.

The second BPS collection obtained data in 1998 (BPS:96/98) and in 2001 (BPS:96/01). The BPS:96/98 interview gathered information on postsecondary enrollment, employment, income, family formation/household composition, student financial aid, debts, education experiences, and education and career aspirations. BPS:96/01 focused exclusively on activities since the BPS:96/98 interview, collecting information on postsecondary enrollment and degree attainment; undergraduate education experiences; post-baccalaureate education experiences (for those sample members who had completed a bachelor's degree since the last interview); employment; and family, financial, and disability status as well as civic participation since the last interview.

The third BPS collection obtained data in 2006 (BPS:04/06) and in 2009 (BPS:04/09). BPS:04/06 focused primarily on continued education and experience, education financing, entry into the workforce, the relationship between experiences during postsecondary education and various societal and personal outcomes, and returns to the individual and to society on the investment in postsecondary education. BPS:04/09 focused primarily on employment, baccalaureate degree completion, graduate and professional school access issues, and returns to the individual and to society from the completion of a postsecondary degree. Postsecondary transcripts were also collected from all institutions attended by members of the third BPS collection.

The fourth BPS collection obtained data in 2014 (BPS:12/14) and again in 2017. As with previous BPS studies, BPS:12/14 included a multimode student interview component that collected information on students' education and employment since their first year in postsecondary education. BPS:12/14 also focused on student enrollment patterns since 2012, including any transfers to other institutions, stopout periods, attendance intensity, and certificates and degrees earned. BPS:12/17 focused on the degree completion of students still enrolled after 2014 and the employment of those no longer enrolled.

In 2015, additional data on federal student loans and loan repayment was collected as a supplement to BPS:96/01 and BPS:04/09. The 2015 Federal Student Aid Supplement (FSA Supplement) is a 20-year follow-up to BPS:96/01 and a 12-year follow-up to BPS:04/09. The FSA Supplement consists solely of administrative data obtained from NSLDS and provides complete federal loan receipt

and repayment histories for each borrower in BPS:96/01 and BPS:04/09, as well as complete federal grant award histories for grant recipients. Researchers can use the FSA Supplement data in conjunction with all previously available data for BPS:96/01 and BPS:04/09 to analyze borrowing patterns, grant receipt, and the use of repayment options such as deferment, consolidation, and default.

Periodicity

Each BPS collection includes a base year (defined by a NPSAS collection) with two subsequent follow-ups of data collection, occurring 2 years and 4 to 5 years later.

Data Availability

Public-use data for BPS through BPS:12/14 is available for analysis through DataLab at <https://nces.ed.gov/datalab>. For more information on the BPS public- and restricted-use data, please see <https://nces.ed.gov/surveys/bps/datainfo.asp>.

2. USES OF DATA

BPS cohort studies provide longitudinal data that allow examination of persistence, progress, and attainment after entry into postsecondary education and also workforce entry. Inclusion of students who are not direct entrants to postsecondary education from high school is a unique feature of BPS. Over time, this segment has accounted for proportionally more of all postsecondary students, and their inclusion allows analysis of the differences, if any, between traditional and nontraditional students in aspirations, progress, persistence, and attainment.

Congress and other policymakers use data from the BPS cohort studies when considering how new legislation will affect college students and others in postsecondary education. Specific questions answered by the BPS cohort studies include: What percentage of beginning students complete their degree programs? What are the financial, family, and school-related factors that prevent students from completing their programs, and what can be done to help them? Do students receiving financial aid do as well as those who do not? Would it be better if the amount of financial aid was increased? Additional questions include: Do students who are part-time or discontinuous attenders have the same educational goals as full-time, consistent attenders? Are they as likely to attain similar educational goals? Are students who change majors more or less likely to persist?

3. KEY CONCEPTS

Institution Type. Postsecondary institutions are classified by level of degree offering and length of program at the postsecondary institution, with the following categories: (1) less than 2-year (offers only programs of study that are

less than 2 years in duration); (2) 2- to 3-year, sometimes referred to in reports as 2-year (confers at least a 2-year formal award, but not a baccalaureate degree, or offers a 2- or 3-year program that partially fulfills the requirements for a baccalaureate or higher degree at a 4-year institution; this category includes most community and junior colleges); and (3) 4-year (confers at least a baccalaureate degree and may also confer higher level degrees, such as master's, doctoral, and first-professional degrees; this category is often broken down into doctorate-granting vs. nondoctorate-granting).

Institution Control. Postsecondary institutions are also classified as being (1) public; (2) private nonprofit; and (3) private for-profit, with this categorization referred to as "control".

First-Time Beginning Students (FTBs). The target population for the BPS cohort studies is first-time beginning students (FTBs). Definitions of FTBs have changed slightly across the BPS cohort studies. For the first BPS collection (BPS:90/92, BPS:90/96), FTBs were defined as students who enrolled in postsecondary education for the first time after high school in the 1989–90 academic year. Individuals who started postsecondary education earlier, left, and then returned were not included. For the second BPS collection (BPS:96/98, BPS:96/01), both students who enrolled for the very first time in the 1995–96 academic year, as well as students who had previously enrolled but had not completed a postsecondary course for credit prior to July 1, 1995, were included. This expanded the definition from the act of enrollment to successful completion of a postsecondary course. For the third BPS collection (BPS:04/06, BPS:06/09), both students who enrolled for the first time in the 2003–04 academic year, and those who had previously enrolled but had not completed a postsecondary course for credit prior to July 1, 2003, were included as cohort members. The fourth BPS collection (BPS:12/14) consists of students who began postsecondary education for the first time during the 2011–12 academic year. BPS:12/14 obtained its sample of first-time beginning students (FTBs) from the NPSAS:12 student sample, which included students of both known and unknown FTB status. Therefore, BPS staff used additional information to verify the FTB status of NPSAS:12 sample members. First, staff used class- and student-level information provided by institutions on their student lists to exclude students who had been identified as FTBs but were in their third or higher undergraduate year or were not undergraduate students. Second, prior to sampling, staff used listed students' dates of birth to identify students older than 18 to send for matching to NSLDS records to determine if any had a federal financial aid history predating the NPSAS year (earlier than July 1, 2011). Because NSLDS maintains current records of all Title IV federal grant and loan funding, any student with

disbursements from the prior year or earlier could be reliably excluded from the sampling frame of FTBs.

Nontraditional Students. Students with one or more of the following characteristics are defined as nontraditional: being independent for financial aid purposes, having one or more dependents, being a single caregiver, not having a traditional high school diploma, delaying postsecondary enrollment, attending school part time, and being employed full time.

Persistence. Continuous enrollment in postsecondary education with the goal of obtaining a degree or other formal award is defined as persistence.

Attainment. Receipt of the degree or other formal award while enrolled in postsecondary institutions is defined as attainment.

4. SURVEY DESIGN

Target Population

The target population for each BPS cohort was first-time beginning students, whether they entered postsecondary education immediately following graduation or several years later. For the first BPS cohort, this was the 1989–90 academic year. For the second BPS cohort, this was the 1995–96 academic year. For the third BPS cohort this was the 2003–04 academic year, and for the fourth BPS cohort, this was the 2011–12 academic year. The definition of FTB was refined for the second and third BPS cohort studies to include students who had enrolled in postsecondary education prior to their current postsecondary enrollment if they had not completed a postsecondary course for credit before July 1, 1995 (the beginning of the 1995–96 academic year, for the second BPS cohort) or July 1, 2003 (the beginning of the 2003–04 academic year, for the third BPS cohort). BPS includes students in nearly all types of postsecondary education institutions located in the 50 states, the District of Columbia, and Puerto Rico: public, private nonprofit, and private for-profit institutions; 2-year, 2- to 3-year, and 4-year institutions; and occupational programs that last for less than 2 years. (Note: Because NPSAS:12 excluded Puerto Rico, that territory is likewise excluded from the BPS:12/17 collection.)

Excluded are students attending U.S. Service Academies, institutions that offer only correspondence courses and institutions that enroll only their own employees. Sampling criteria for the base year for the BPS cohort studies (i.e., NPSAS) varied over the years. NPSAS studies prior to 2004 excluded institutions that offered only correspondence courses. NPSAS:04 included such institutions if they were eligible to distribute Title IV student aid. BPS data are nationally representative of the

cohort period from which they are drawn (for more information, readers should consult the methodology report corresponding to the particular BPS collection).

Sample Design

Student eligibility for each BPS cohort is determined in two stages. The first stage involves selection for the base-year NPSAS sample; see the NPSAS chapter for a description of NPSAS sample design and determination of FTBs who make up the BPS cohort. All FTBs who complete interviews in NPSAS are considered eligible for BPS. The second stage involves a review of NPSAS data to see if any potential FTBs have been misclassified. FTB status for additional students may be determined through (1) reports from NPSAS institutions; (2) responses of the sample member during the BPS interview; and (3) modeling procedures used after data collection.

First BPS Cohort (1989–90). The first BPS cohort consisted of 11,700 students (from about 1,090 institutions) who had been interviewed in the 1989–90 NPSAS. In the second follow-up of data collection (in 1994), a working sample of 7,910 individuals was initially used. This sample consisted of eligible respondents plus base year or NPSAS nonrespondents for whom FTB status had yet to be determined. Only 7,130 sample members could be located. Of these, 6,790 members were interviewed (either fully or partially) in 1992. Some of those interviewed (170) were determined to be non-FTBs, leaving 6,620 eligible FTBs who were either fully (5,930) or partially (690) interviewed in the second follow-up of data collection in 1994.

Second BPS Cohort (1995–96). In the second BPS cohort, 12,410 confirmed and potential FTBs (from about 800 institutions) were included in the first follow-up in 1998 from a total of 15,730 confirmed or potential FTBs in the base year NPSAS. The FTBs included 3,740 who had not been interviewed in the 1995–96 NPSAS (of whom 430 were selected for potential continued inclusion in BPS). This BPS-eligible sample of 12,410 individuals was further reduced when an additional 230 were determined to be ineligible. The BPS-eligible sample contained 10,270 FTBs who were given full or partial interviews in the first follow-up; 1,060 were not able to be contacted, and 850 did not respond.

The final sample for the second follow-up data collection in 2001 included 10,370 respondents. This included all respondents to the previous follow-up data collection in addition to a subsample of earlier nonrespondents and other individuals who were unavailable for the earlier follow-up data collection.

In 2015, the FSA supplement attempted to match 12,340 BPS:96/01 sample members to NSLDS records. Of those,

8,590 matched to at least one loan record, and 5,990 matched to at least one grant record.

Third BPS Cohort (2003–04). The third BPS cohort consisted of 23,090 confirmed and potential FTBs (from 1,360 institutions), of whom approximately 18,640 were determined to be eligible. Of this final BPS-eligible sample, 14,900 FTBs were given full or partial interviews in the first follow-up of data collection in 2006.

The final sample for the second follow-up of data collection in 2009 was 15,160 FTBs who completed full or partial interviews; 1,690 who had not been located; 1,440 who had not responded; and 320 who were determined to be exclusions. At the conclusion of data collection, 110 were found to be deceased and were removed from the sample.

In 2015, the FSA Supplement attempted to match 17,580 BPS:04/09 sample members to NSLDS records. Of those, 12,044 matched to at least one loan record, and 9,600 matched to at least one grant record.

Fourth BPS Cohort (2011–12). The fourth BPS cohort consisted of approximately 30,080 students who had been interviewed and confirmed to be FTBs in NPSAS:12, and a subsample of 7,090 NPSAS:12 nonrespondents who were considered potential FTBs based on student records or institution lists. This resulted in an initial sample size of 37,170 students (from 1,690 institutions). Information gathered during data collection established that some potential FTBs were not FTBs and were therefore ineligible for inclusion in BPS:12/14. The final sample consisted of 35,540 eligible students. BPS:12/14 staff defined a “student interview respondent” as any sample member who was eligible for inclusion in the study and had a completed, partial, or abbreviated BPS:12/14 interview.

The BPS:12/17 sample was a subset of the BPS:12/14 sample, in that BPS:12/14 sample members determined to not be FTB students were ineligible and, therefore, excluded from the BPS:12/17 sample. Deceased individuals were also excluded from the BPS:12/17 sample. Although 1,790 sample members who did not respond to the BPS:12/14 interview and lacked sufficient information to be classified as NPSAS:12 study members were eligible for BPS:12/17, these cases were not fielded in BPS:12/17.

In addition, early in the data collection period, the names of 30 sample members were matched to names on the *Specially Designated Nationals and Blocked Persons List*, published by the U.S. Department of the Treasury, Office of Foreign Assets Control. The matched individuals were excluded from data collection activities, treated as study

nonrespondents for purposes of response rate calculation, and accounted for with weight adjustments.

Data Collection and Processing

For the first and second BPS cohort studies, computer-assisted telephone interviewing (CATI) was the primary data collection tool. All locating, interviewing, and data processing activities were under the control of an Integrated Control System (ICS), consisting of a series of PC-based, fully linked modules. The various modules of the ICS provided the means to conduct, control, coordinate, and monitor the several complex interrelated activities required in the study and served as a centralized, easily accessible repository for project data and documents.

For the third BPS collection, a self-administered web interview was introduced as an additional data collection option. A single web-based instrument was developed for these self-administered interviews as well as for CATI interviews and computer-assisted personal interviews (CAPI). All aspects of the study for the third cohort were controlled using an Integrated Management System (IMS): a comprehensive set of desktop tools that included a management module, a Receipt Control System (RCS) module, and an instrumentation module.

BPS Data Collection Follow-ups

The following sections describe the data collection and processing procedures for the successive follow-ups of data collection from BPS cohorts. Refer to the NPSAS chapter for a description of data collection and processing for the base-year data obtained from NPSAS.

Reference Dates. NPSAS serves as the sampling frame from which the BPS collection samples are chosen. Thus, the BPS collection nomenclature begins with the NPSAS study year. The subsequent data collections are 2 years and 4 to 5 years later and correspond to average time periods for the completion of sub-baccalaureate (3 years after entering postsecondary education) and baccalaureate degree completions (5 to 6 years after entering postsecondary education).

Data Collection. Data collection in the two subsequent follow-ups for each BPS collection involves mail and telephone contacts to trace potential sample members to their current location and to conduct CATI interviews in order to establish study eligibility and collect data. In addition, field staffs were used to locate and to conduct CAPI interviews in the second and third BPS cohort studies. The third BPS collection introduced self-administered web interviews as an additional initial data collection method.

Locating students begins with information provided by the BPS locating database, which is updated by a national

change-of-address service. Cases not located in previous follow-ups are forwarded to pre-CATI telephone tracing and, if unsuccessful, passed onto field locating. Prior to the start of CATI operations, pre-notification mailings are sent to students, and current contact information is provided to interviewers for basic CATI locating. (For the third BPS collection, there was an additional 4-week early response period during which sample members could complete a self-administered web interview before CATI operations began.) In the event that CATI locating is unsuccessful, cases are sent to post-CATI central telephone tracing and, again as necessary, field locating. During tracing operations, cases of “exclusion” are identified, such as those who are (1) outside of the calling area; (2) deceased; (3) institutionalized or physically/mentally incapacitated and unable to respond to the survey; or (4) otherwise unavailable for the entire data collection period.

Data quality is achieved by monitoring the interview process, including the proper delivery of questionnaire text and recognition statements, and entry of respondents’ responses into CATI.

Each coding operation is subjected to quality control review and recoding procedures by expert coders. Subsequent to data collection, all “other, specify” responses are evaluated for possible manual recoding into existing categories or into new categories created to accommodate responses of high frequency through a process known as “upcoding.”

Efforts are also made to convert several items with high rates of undetermined responses, including refusal or “don’t know.” In order to reduce indeterminacy rates for personal, parent, and household income items, as well as for other financial amount items, specific questions are included in the survey to route initial “don’t know” responses through a series of screens that seek closer and closer financial estimates. In the second follow-up of the first BPS collection (BPS:90/92, BPS:90/94), indeterminacy conversion was attempted for five financial amount items (i.e., financial aid amount, total loan amount, respondent gross income, parents’ gross income, and household gross income) and was successful for initial “don’t know” responses. Conversion rates were greater than 50 percent for every item attempted, with an overall success rate of 65 percent.

In the second BPS collection (BPS:96/98, BPS:96/01), approximately 1,930 sample members initially refused to participate in the first follow-up of data collection. Fifty-three percent (1,020) of these refusals were converted. For the second follow-up of this cohort, 1,860 sample members refused to participate at least once. Of these, 74 percent were converted. The FSA Supplement consisted

entirely of administrative data obtained from NSLDS records.

For the first follow-up of the third BPS collection (BPS:04/06), 1,850 sample members refused to be interviewed at some point in the data collection. Of these refusals, 700 (approximately 38 percent) ultimately completed an interview. In the second follow-up (BPS:04/09), 8,380 sample members reached the nonrespondent phase of interviewing, with 4,860 (almost 58 percent) completing the interview before the end of data collection. Postsecondary transcripts were collected for the first time for BPS:04/09. The transcript collection included 3,100 institutions. Of the 3,030 institutions that were eligible to provide transcripts, 2,620 (87 percent) provided transcripts for the cohort. The FSA Supplement consisted entirely of administrative data obtained from NSLDS records.

For the first follow-up of the fourth BPS collection (BPS:12/14), 10,770 eligible students did not participate in data collection, leaving a response rate of 68 percent (24,770 students).

BPS administrations prior to BPS:12/14 did not require that the NPSAS institution be the first institution a student attended after completing high school for the student to be eligible for the study. Therefore, the first institution a respondent attended was not necessarily the NPSAS institution. In BPS:12/14 students who reported in the eligibility section that the NPSAS institution was not the first postsecondary institution they attended after completing high school were excluded from the study sample. Nevertheless, about 1 percent of BPS:12/14 respondents indicated later in the interview, in the enrollment section, that they had attended another institution 1 or more months prior to attending the NPSAS institution and during the 2011–12 academic year. Despite this discrepancy, in BPS:12/14 these respondents’ first institution is defined as the NPSAS institution.

For the second follow-up of the fourth BPS data collection (BPS:12/17), among eligible sample students (about 35,170), the weighted interview response rate was 67 percent.

Editing. The CATI data are edited and cleaned as part of the preparation of the data file. Modifications to the data are made based on problem sheets submitted by interviewers, which detail item corrections, deletions, and prior omissions. In addition, variables are checked for legitimate ranges and consistency. Coding corrections and school information from the Integrated Postsecondary Education Data System (IPEDS) Institutional Characteristics files are merged into the CATI files. Data inconsistencies identified during analyses are also corrected, as appropriate and feasible.

The web instrument for interviews used in subsequent follow-ups of the third BPS collection (BPS:04/06, BPS:04/09) included online coding systems which ensured that most codes were assigned during data collection rather than during data editing. Post-data collection, data were edited using procedures developed for previous NCES-sponsored studies, including the base-year study (NPSAS:04). These included quality checks and examinations of skip patterns and the reasons for missing data.

Estimation Methods

Weighting is used to adjust for unit nonresponse, and imputation is performed to compensate for item and unit nonresponse.

Weighting. Data gathered in subsequent follow-ups of BPS study cohorts were used to verify FTB status for sample members. Furthermore, post hoc modeling is implemented following the first follow-up data collection in an attempt to identify non-FTBs among nonrespondents.

Four sets of weights were computed for use with BPS data for the first collection (1989–90): (1) 1992 cross-sectional weights for cross-sectional analyses of the first cohort at the time of the first follow-up, based on the first follow-up data collection; (2) 1994 cross-sectional weights for cross-sectional analyses of the first collection at the time of the second follow-up data collection; (3) 1992 cross-sectional weights for the first follow-up information that was collected either during the first follow-up or retrospectively in the second follow-up; and (4) weights for analyzing the data from sample members who were considered study respondents in NSPAS:90, BPS:90/92, and BPS:90/94 (i.e., the “longitudinal” weights). For computation of these weights, see the technical report for the second follow-up (BPS:90/94; Pratt et al. 1996).

The 1994 cross-sectional weights can also be used for longitudinal analyses involving data items collected retrospectively in the second follow-up, because those data items are available for 1992 (either directly from the first follow-up or retrospectively from the second follow-up if the student responded in 1994). Each set of weights consists of an analysis weight for computing point estimates of population parameters, plus a set of 35 replicate weights for computation of sampling variances using the Jackknife replication method of variance estimation. All weight adjustments were implemented independently for each set of replicate weights. (See “Sampling Error” in section 5 below for further detail on replicate variance estimation.)

For the second BPS collection, four sets of weights were also constructed: (1) 1998 analysis weights for point estimates of population parameters for students in the first follow-up (BPS:96/98); (2) 2001 cross-sectional weights

for analyzing respondents to the second follow-up (BPS:96/01); (3) longitudinal weights for analyzing respondents to NPSAS:96 and both BPS follow-ups; and (4) longitudinal weights for analyzing respondents only to NPSAS:96 and BPS:96/01. No new weights were created during the production of the FSA Supplement. Therefore, users should apply the weights created for BPS:96/01 in order to produce nationally representative estimates.

For the first follow-up of the third BPS collection (BPS:04/06), analysis weights were developed based on the weights from the base year data collection (NPSAS:04). For the second follow-up (BPS:04/09), three types of weights were developed: (1) a weight for analyzing data from BPS:04/09 study respondents (i.e., sample members with data from either the student interview or enrollment data from other external sources); (2) a weight for analyzing data from those who were considered study respondents in NSPAS:04, BPS:04/06, and BPS:04/09 (this weight is the “longitudinal” or “panel” weight); and (3) a weight for analyzing the transcript data of BPS:04/09 sample members. The weights were adjusted for nonresponse and were also raked to IPEDS and NPSAS:04 control totals. No new weights were created during the production of the FSA Supplement. Therefore, users should apply the weights created for BPS:04/09 in order to produce nationally representative estimates.

For the first follow-up of the fourth BPS collection (BPS:12/14), statisticians computed a weight variable to represent the target populations. The BPS:12/14 weights were derived from NPSAS:12 design weights and were calibrated to population estimates from the 2010–11 IPEDS enrollment files. The weights compensate for the unequal probability of selection of institutions and students in the NPSAS:12 sample and ensure that estimates generated from sample data represent the target population. The weight also adjusts for multiplicity at the institution and student levels and unknown student eligibility for NPSAS:12 and for subsampling, unknown eligibility, nonresponse, and population coverage in BPS:12/14. To account for subsampling, an adjusted weight was computed from the initial weight variable representing the target population. The initial weight variable was multiplied by the inverse of the subsampling selection probability. A single weight was constructed for BPS:12/14 for those sample members who had a completed or partial BPS:12/14 interview. This weight supports joint analysis of NPSAS:12 variables and variables obtained directly or derived from the BPS:12/14 interview. Nonresponse and population coverage weight adjustments were computed using the WTADJUST procedure, in which weight trimming and adjustment occur in one step.

For the second follow-up of the fourth BPS collection (BPS:12/17), because some BPS:12/17 respondents were nonrespondents in NPSAS:12, BPS:12/14, or both, two analysis weights were constructed. The first weight (WTA000), created for all BPS:12/17 interview respondents regardless of their NPSAS:12 or BPS:12/14 response status, was a cross-sectional weight. The second weight (WTB000), created for all BPS:12/17 respondents who also responded in BPS:12/14, serves as the panel weight.

Imputation. Imputation was performed on a small number of variables for the earlier BPS cohort studies. These variables relate to the student's dependency status and family income in each survey round. For example, the variable containing dependency status for aid in academic year 1989–90 (BPS:90/92, BPS:90/96) was derived by examining all applicable variables used in the federal definition of dependency for the purpose of applying for financial aid. If information was not available for all variables, then dependency status was imputed based on age, marital status, and graduate enrollment. Similarly, the variable containing the 1988 family adjusted gross income used imputed values if responses were not available.

In data collection follow-ups for the second BPS collection (BPS:96/98, BPS:96/01), logical imputations were performed where items were missing but their values could be implicitly determined, such as the amount earned by a respondent who did not work in 2000 (imputed to \$0).

In the third BPS collection (BPS:04/06, BPS:04/09), imputation was performed for all variables on the data file with missing data, including questionnaire items and derived variables. In addition, nonrespondents to the BPS:04/06 interview appear in the analysis file with imputed data. Response rates and estimated bias in BPS:04/06 are reported both with nonimputed data (prior to item imputation) and after imputation. For BPS:04/09, imputation was also performed for questionnaire items with missing data, including cases who did not complete the interview but had enrollment data from other sources. Derived variables obtained from student transcript data and the variables included in the remaining restricted files were not imputed.

In the fourth BPS collection (BPS:12/14), statisticians imputed missing data for most of the variables included in the BPS:12/14 PowerStats and QuickStats applications. The imputation procedure involved a four-step process. In the first step, staff logically imputed missing data based on values of other variables. Variables with higher levels of missingness were input after variables with lower levels of missingness. In the second step, staff identified a set of criteria that defined imputation classes used to stratify the dataset. This allowed staff to process imputations

independently within each class and improve the quality of the imputed data. In the third step, BPS statisticians implemented an initial weighted sequential hot deck process to replace missing data with valid data from the records of donors within imputation classes. In the fourth step, BPS staff implemented a cyclic n -partition hot deck process to iteratively cycle through n -partition hot decks. During the imputation process, quality checks were conducted in order to reduce error. Additional information regarding imputation in BPS:12/14 is available in the BPS:12/14 data file documentation (NCES 2016-062).

For the second follow-up of the fourth BPS collection (BPS:12/17), missing data were also imputed for all variables used in this report and most of those included in the BPS:12/17 PowerStats and QuickStats applications. The imputation procedure included a weighted sectional hot deck process (Cox 1980) followed by a cyclic n -partition hot deck process (Marker, Judkins, and Winglee 2002). Additional details regarding the creation and use of weights and imputation procedures are available in the BPS:12/17 Data File Documentation (Bryan, Cooney, and Elliott forthcoming).

Future Plans

The second follow-up to the fourth BPS collection (representing the 2011–12 academic year) occurred in 2017 (BPS:12/17). Data files and reports are scheduled to be released through 2019 and 2020.

5. DATA QUALITY AND COMPARABILITY

Sampling Error

Because the NPSAS sample design involves stratification, disproportionate sampling of certain strata, and clustered (i.e., multistage) probability sampling, the standard errors, design effects, and related percentage distributions for a number of key variables in BPS have been calculated with the software package SUDAAN. These variables include sex, race/ethnicity, age in the base year, socioeconomic status, income/dependency in the base year, number of risk factors in the base year, level and control of the first institution, and aid package at the first institution in the base year. These estimates provide an approximate characterization of the precision with which BPS survey statistics can be estimated.

Several specific procedures are available for calculating precise estimates of sampling errors for complex samples. Taylor Series approximations, Jackknife repeated replications, and balanced repeated replications produce similar results.

Nonsampling Error

Nonsampling error can occur due to coverage error, unit and item nonresponse, or to measurement error. Sections below elaborate on each.

Coverage error. Samples for the BPS cohort studies are drawn from the base year NPSAS. Consequently, any issue of sampling frame coverage occurring in the NPSAS sample will be reflected in BPS collection samples. (Refer to the NPSAS chapter for coverage issues.)

Nonresponse error. Unit nonresponse is reported in BPS in terms of *contact rates* (i.e., the proportion of sample members who were located for an interview) and *interview rates* (i.e., the proportion of sample members who fully or partially completed the interview). Item nonresponse has not been fully examined. Codebooks enumerate the numbers of nonresponders to each item in the data file.

Unit nonresponse. The results for the second follow-up of the first BPS collection (BPS:90/94) show a contact rate of 92 percent. The rate was substantially lower for individuals who did not respond to the first follow-up (75 percent) than for those who did respond (95 percent). Contact rates also varied by institution type. The rate was highest for sample members who attended 4-year colleges (95 percent); in contrast, contact was made with only 81 percent of sample members attending private for-profit institutions with programs of less than 2 years.

For the second BPS collection, the contact rate for the first follow-up (BPS:96/98) was 91 percent. The overall unweighted response rate was 84 percent. Full respondents to NPSAS:96 had a contact rate almost 33 percentage points higher than NPSAS:96 nonrespondents (94 vs. 61 percent). Students from private, for-profit institutions had the lowest contact rates (79 percent for 2-year institutions and 82 percent for less-than-2-year institutions), while students from public 4-year institutions (94 percent) and private, nonprofit 4-year institutions (94 percent) had the highest contact rates.

In the second follow-up of the second BPS collection (BPS:96/01), the contact rate was 92 percent. The overall unweighted response rate was 88 percent. Students who had not participated in the first follow-up had a lower contact rate (81 percent) than those who had been interviewed both in NPSAS:96 and BPS:96/98 (93 percent) and those who had only been interviewed in BPS:96/98 (92 percent). Contact rates were similar across institutions, with a high of 96 percent for private, nonprofit 4-year doctorate-granting institutions and a low of 86 percent for private, for-profit less-than-2-year institutions.

The first follow-up to the third BPS collection (BPS:04/06) reported locating 89 percent of the sample members. Of these, 81 percent were considered eligible for BPS. Among all eligible sample members (including both located and

not located), the overall unweighted response rate was 80 percent; among eligible cases that were successfully located, the response rate was 90 percent. For the second follow-up, 91 percent of the sample members were located. Eligibility did not need to be evaluated as part of BPS:04/09. The overall unweighted response rate was 82 percent; among eligible cases that were successfully located, the response rate was 90 percent.

Among those students in the first BPS collection who were contacted for the second follow-up, the interview rate was 95 percent. The rate was higher for respondents to the first follow-up than for nonrespondents (96 vs. 89 percent). Interview rates were fairly similar across institutions, ranging from 91 percent for students attending private, nonprofit less-than-2-year institutions to 96 percent for students attending private, nonprofit 4-year institutions.

The interview rate for those contacted in the first follow-up of the second BPS cohort was 92 percent. This rate was lower for NPSAS:96 nonrespondents than for full or partial respondents (71 percent vs. 94 and 82 percent). Interview rates were much more consistent across institutions; private, for-profit 2-year institutions were the lowest at 88 percent, and private, for-profit 4-year institutions were the highest at 95 percent.

In the second follow-up to the second BPS collection, the interview rate was 96 percent of those contacted. As with the contact rates, the interview rates varied across groups of participants. Specifically, interview rates were lower for those not interviewed in the first follow-up than for those interviewed both in the base-year study and the first follow-up and those interviewed only in the base-year study (81 percent vs. 96 and 91 percent). Interview rates varied across institutional sectors from 93 to 97 percent.

In the third BPS collection, among located eligible students, interview rates for those contacted in the first follow-up were higher for NPSAS:04 respondents (90 percent) than nonrespondents (52 percent). Similarly, second follow-up interview rates were higher among first follow-up respondents (93 percent) than nonrespondents (77 percent). Across institution types, interview rates varied from 87 to 94 percent for the first follow-up and from 70 to 88 percent for the second follow-up. Of the completed interviews, 58 percent completed on the web and 42 percent were interviewer-administered (39 percent CATI and 3 percent CAPI). For the second follow-up, 64 percent of interviews were completed by web with 36 percent administered by an interviewer (32 percent CATI and 4 percent CAPI).

In the FSA Supplement to BPS:96/01 and BPS:04/09, study participants who did not have a valid social security number (SSN) for extracting National Student Loan Data System (NSLDS) records were considered

nonrespondents. Some 0.5 percent of BPS:96/01 study participants did not have a valid SSN, and 4 percent of BPS:04/09 study participants did not have a valid SSN. Table BPS-1 summarizes the unit-level weighted response rates across four BPS administrations. Details on the second follow-up for the fourth BPS collection are not available at this time.

For the first follow-up of the fourth BPS collection, the BPS:12/14 weighted response rate for students was below 85 percent overall and all categories of institution defined by control, level, and doctorate-granting status. Therefore, a student-level nonresponse bias analysis was conducted overall and within institution categories for BPS:12/14. The BPS:12/14 study weight was used to compute nonresponse bias. For those items with a response rate below 85 percent, statistical significance of the nonresponse bias ranged from 19 to 78 percent. Also, to determine if the imputation process was successful in reducing nonresponse bias, item estimates before and after imputation were compared. Imputation was considered successful in reducing nonresponse bias if pre and post-imputation estimates differed significantly. Imputation was found to be slightly successful in reducing bias, with 18 percent of variables having a statistically significant difference before and after imputation.

The BPS:12/17 weighted interview response rate for students was 67 percent overall and ranged from 51 percent for for-profit less-than-2-year institutions to 76 percent for public 4-year doctorate-granting institutions. As the response rates were below 85 percent, as required by NCES Statistical Standards, a student-level nonresponse bias analysis was conducted overall and within each institution category for BPS:12/17.

Item nonresponse. Overall item nonresponse rates have been low across surveys (only 10 of the 363 items in BPS:96/98 and 9 of the 363 items in BPS:96/01 contained over 10 percent missing data, 7 of the more than 400 items in BPS:04/06 and 19 of 385 items in BPS:04/09 had a total nonresponse over 5 percent). Items with the highest nonresponse rates were those for income and student loans. Many respondents were reluctant to provide information about personal and family finances or simply did not know this information.

In BPS:12/14, the weighted item response rates for items ranged from 71 percent to 100 percent overall. The weighted item response rates within the institution categories analyzed ranged from 63 percent to 100 percent.

Measurement error. Several methods have been used during data collection to ensure data quality, such as consistency in responses. These methods are described below.

Cross-Interview Data Verification. During data collection, information from a prior interview (or from base-year NPSAS data) is verified or updated to ensure consistency across survey follow-ups. In the first follow-up of the first BPS collection (BPS:90/92), demographic information covered in NPSAS (e.g., sex, race, and ethnicity) was verified or updated. The results indicated high reliability of these items. Prior to the full-scale second follow-up, another set of items covered in earlier rounds was verified or updated, including high school graduation status, schools attended prior to the base year, and jobs held prior to the base year. These data were also found to be reliable across survey follow-ups. Agreement approached 100 percent on high school graduation status, 99 percent on previous attendance at postsecondary schools, and 96 percent on previous jobs.

Replacement of missing data in subsequent follow-ups of the second BPS collection (BPS:98/01, BPS:96/01) was minimal. Similarly, replacement of missing data in subsequent follow-ups of the third collection (BPS:04/06) was minimal. Data were perturbed to ensure nondisclosure of respondent identification. Replacement of missing data was done on the follow-ups of the third BPS collection (BPS:04/09). Missing values were imputed using data obtained from the prior follow-up data in 2006. Data were also perturbed.

Reinterview. All BPS field test interview activities included a second interview. As well, a subsample of respondents to the main interview was reinterviewed.

The second interview was similar to the first but abbreviated, and responses were compared to evaluate consistency. The interval between the initial interview and the reinterview ranged from 3 to 14 weeks.

Across BPS data collections, each new reinterview is designed to build on previous analyses by targeting revised items, new items, and items not previously evaluated. Reinterview analyses focus on data items that were expected to be stable for the time period between the initial interview and the reinterview. These items cover education experience; work experience (e.g., employee's primary role, future career plans, principal job's relation to education, satisfaction with principal job, and factors affecting employment goals); education finances; and living arrangements. For all the BPS cohort studies, the reliability of survey items has varied in ways that are typical of the types of questions being asked and answered. Rates of agreement have tended to be high among factual questions, such as those related to enrollment history, employment, and background characteristics. Reliability has been lower among numeric responses, such as income for a calendar year and parents' income. Adjustments in question design, wording, and response options were made

from field test to full-scale administration to address problems in item reliability.

When there continued to be concern for the reliability of an item, it was reevaluated in the next field test interview.

Item Order Effects. As needed, analyses are conducted to evaluate order effects, that is, the sequence in which questionnaire items are presented to respondents and the resulting response patterns. Discrepancies are examined

and adjustments made, as needed, for the full-scale data collection. Order effects are controlled through the randomization of response options that is possible with computer-assisted interviews. Also analyzed are discrepancies of online coding procedures for postsecondary institutions, fields of study, and combined and separate industry and occupations. To achieve high data quality, expert coding personnel recode items that have been identified as inconsistent.

Table BPS-1. Unit-level weighted response rates for BPS student surveys, by cohort: 1990–2017

| Cohort | Base year inst. level ^{1,2} | Base year student level ¹ | 1 st follow-up | 2 nd follow-up |
|--|--------------------------------------|--------------------------------------|---------------------------|---------------------------|
| 1 st cohort (base year 1989–90) | 86 | 84 | 86 ³ | 91 |
| 2 nd cohort (base year 1995–96) | 91 | 96 | 80 | 84 |
| 3 rd cohort (base year 2003–04) | 80 | 91 | 80 ^{3,4} | 71 |
| 4 th cohort (base year 2011–12) | 87 | 91 | 68 | 67 |

— Not available.

¹ Base year NPSAS (analysis file) response rates.

² Institutional response rates for student sampling lists.

³ Student interview response rate.

⁴ Unweighted response rate.

NOTE: Follow-up response rates are overall response rates, except where noted.

SOURCE: BPS publications NCES 94-369, NCES 96-153, NCES 2002-171, NCES 2012-246, NCES 2016-401, NCES 2018-409 and NCES 2019-401; available at <https://nces.ed.gov/pubsearch/getpubcats.asp?sid=014>.

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7. METHODOLOGY AND EVALUATION REPORTS

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