

National Household Education Surveys (NHES)

Website: <https://nces.ed.gov/nhes/>

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1. OVERVIEW

The National Household Education Surveys (NHES) program surveys the noninstitutionalized, civilian population of the United States. NHES is designed to provide information on educational issues that are best addressed by contacting households rather than schools or other education institutions. It offers policymakers, researchers, and educators a variety of statistics on the condition of education in the United States.

Purpose

To (1) provide reliable estimates of the U.S. population regarding specific education-related topics; and (2) conduct repeated measurements of the same educational phenomena at different points in time.

Components

The NHES program for a given year typically consists of (1) a screener (a questionnaire that collects household composition and demographic data); and (2) two or three topical surveys (extended questionnaires addressing specific education-related topics). The most recent NHES:2016 collection included topical components on adult training, early childhood program participation, and parent and family involvement in education for children enrolled in school and homeschooled children. NHES has been conducted approximately every other year since 1991. There was a 5-year gap in data collection between 2007 and 2012 when NHES switched from a telephone survey to a mail/web survey.

Adult Training. The Adult Training and Education Survey was added in 2016 (ATES-NHES:2016) and collected information on educational attainment, prevalence and characteristics of certifications and licenses and their holders, prevalence and characteristics of educational certificates and certificate holders, and completion and key characteristics of work experience programs such as apprenticeships and internships. Eligible respondents were noninstitutionalized adults ages 16 and 65 who were not enrolled in high school. ATES-NHES:2016 data cannot be compared to prior NHES data because ATES-NHES:2016 consists of new questions that focus on “adult training” whereas previous NHES surveys focused on “adult education”.

Early Childhood Program Participation. Early Childhood Program Participation Surveys were conducted in 2016, 2012, 2005, 2001, 1999, 1995, and 1991. The Early Childhood Program Participation Survey of 2016 (ECPN-NHES:2016) was the seventh collection for this topic and provided data on children’s participation in care by relatives and non-relatives in private homes and in center-based daycare or preschool programs (including Head Start and Early Head Start). Additional topics included family learning activities, out-of-pocket expenses for nonparental care, continuity of care, factors related to parental selection of care arrangements, parents’ perceptions of care quality, child health, and child, parent, and household characteristics. Children between birth and age 6 (and who were not yet in kindergarten) were sampled; respondents were

BIENNIAL SAMPLE SURVEY OF HOUSEHOLD MEMBERS:

NHES addresses topical issues on a rotating basis:

- Adult training and education
- Homeschooling
- Young children’s care and education
- Parent/family involvement in education

parents or guardians in the household who knew about the sampled child.

Parent and Family Involvement in Education. Surveys on this topic were conducted in 2016, 2012, 2007, 2003, 1999, and 1996. The 2016 Parent and Family Involvement in Education Survey (PFI-NHES:2016) and 2012 Parent and Family Involvement in Education Survey (PFI-NHES:2012) collected information for enrolled students (PFI-Enrolled) and homeschooled students (PFI-Homeschooled). The PFI-NHES:2016 collected information about various aspects of parent involvement in education, such as help with homework, family activities, and parent involvement at school. The PFI-NHES:2012 collected information on family involvement in students' schools and in home learning activities, school choice, school characteristics, student experiences in school, teacher feedback on the child's performance and behavior, family help with homework, factors affecting family involvement, and characteristics of homeschooling. Students in kindergarten through grade 12 who were enrolled in school or homeschooled were sampled; respondents were parents or guardians in the household who knew about the sampled child.

One key topic of NHES is homeschooling, information on which is currently collected as part of the PFI-NHES topical component. For homeschooled students, the survey asks questions related to students' homeschooling experiences, the sources of the curriculum, and the reasons for homeschooling.

Previous components. NHES has consisted of different topical components in prior years, including: adult education; before- and after-school programs and activities; civic involvement; school readiness; household and library use; and school safety and discipline. To obtain more information regarding NHES topics organized by year, visit https://nces.ed.gov/nhes/studyinfo_purpose.asp.

Periodicity

NHES has been conducted in the winter/spring of 1991, 1993, 1995, 1996, 1999, 2001, 2003, 2005, 2007, 2012, and 2016. The next data collection is projected to occur in 2019.

Data Availability

Public-use data for NHES through 2016 is available at <https://nces.ed.gov/nhes/dataproducts.asp>.

2. USES OF DATA

NHES provides descriptive data on the educational activities of the U.S. population and offers policymakers, researchers, and educators a variety of statistics on the condition of education in the United States. Each NHES survey collects specific data based on a set of research questions that guide the development of the questionnaire.

As described above, the main subject areas for the NHES program are:

- Adult training and education;
- Homeschooling
- Young children's care and education; and
- Parent and family involvement in education.

Analysts should review the instrument for each survey to identify areas of particular interest to them.

3. KEY CONCEPTS

Household members. Individuals who think of the sampled household as their primary place of residence, including persons who usually stay in the household but are temporarily away on business or vacation, or in a hospital.

See the survey documentation for definitions specific to any one NHES survey. A few survey-specific definitions are below.

Adult training. Training that includes nondegree credentials (e.g., occupational certifications, licenses, postsecondary certificates, etc.) or work experience programs (e.g., apprenticeships, internships, etc.).

Homeschooling. Homeschooled students are school-age children (ages 5–17) in a grade equivalent to at least kindergarten and not higher than 12th grade who receive instruction at home instead of at a public or private school either all or most of the time.

Nonparental care. Care provided to a child on a regular basis from either a relative (other than a parent or guardian); a non-relative (either in the child's home or in someone else's home); or a day care center, preschool, or prekindergarten (not in a private home).

4. SURVEY DESIGN

Target Population

The target population for NHES is noninstitutionalized, civilian members of households in the 50 states and the District of Columbia. Because the topical surveys change from one NHES to the next, the specific age or grade criteria for the target populations also change. In general, there are three educational populations of interest: (1) children from birth through age 6, not yet enrolled in kindergarten; (2) school-aged children enrolled in kindergarten through grade 12, or homeschooled for the equivalent grades; and (3) adults not enrolled in 12th grade or below. The respondent is usually the parent or guardian of the child who is most knowledgeable about the education

or care of the sampled child, the sampled youth, or the sampled adult.

Sample Design

NHES:2016 used a nationally representative address-based sample covering the 50 states and the District of Columbia. The survey was conducted by the U.S. Census Bureau from January through August 2016. The 2016 administration of NHES included a screener survey and three topical surveys: the Parent and Family Involvement in Education Survey, the Adult Training and Education Survey, and the Early Childhood Program Participation Survey. The screener survey asked for an enumeration of household members and was used to select an eligible household member for a topical survey.

All sampled households received initial contact by mail. While the majority of respondents completed paper questionnaires, a small sample of cases (n=35,000) was part of a Web experiment with mailed invitations to complete the survey online.

NHES:2012, also used an address-based sample; however, there was no option to complete the survey online. Prior to 2012, NHES used random digit dial (RDD) samples of landline telephones. Due to changes in the survey mode and item wording over the last few administrations, readers should use caution when comparing estimates with prior NHES administrations.

The 2016 household screener instrument was revised from the 2012 NHES to include a complete listing of all household members (up to 10) rather than just of children in the household.

Sampling Households. Several general sampling approaches have been taken with NHES, with the most recent being a two-stage address-based sampling approach. From 1995 to 2007 NHES used list-assisted RDD sampling, and the earliest administrations in 1991 and 1993 used a modified version of the Mitofsky-Waksberg RDD procedure.

NHES:2016. The first sampling stage selected 206,000 residential addresses; to increase the number of Black and Hispanic individuals in the sample, Black and Hispanic households were sampled at a higher rate than other households. Also, since ECPP-eligible children comprise a smaller portion of the population than PFI-eligible children, differential sampling in households with children in both domains was applied to ensure a sufficient sample size for the ECPP survey. The differential probabilities of selection (for households overall and also within households) are accounted for in the NHES weighting methodology.

Previous Administrations. For more details regarding the sampling of households in NHES:2012 and earlier, please

refer to the corresponding Data File User's Manual provided by the National Center for Education Statistics.

Approaches to household enumeration. The approach to screening households has changed over the course of the NHES program. Changes have been made in the methods of enumerating members of households that are contacted and the amount of information collected in the screener about the household and its members. In 2016, NHES screener questionnaires were sent by mail. The first question on the screener asked "How many people live in this household?" Respondents were then asked to provide the name, birth month and year, sex, current education enrollment status, and current grade equivalent for each person in the household. 115,342 completed screener questionnaires were returned for a weighted response rate of 66.4 percent. In 2012, NHES screener questionnaires were sent by mail. The first question on the screener asked, "Are there any youth or children age 20 or younger living in this household?" If the answer was no, respondents were instructed to return the questionnaire. If the answer was yes, respondents were instructed to provide name, age, sex, enrollment status, and grade level for each child or youth in the household. In prior administrations, household members were fully enumerated by phone interviewers.

Sampling within households. The within-household sample designs for the NHES collections are determined by the specific goals of the surveys administered and by the combination of surveys administered in a specific year. The number of people sampled per household varies across NHES administrations and modes, but no more than one person per survey was sampled within a household. Differential probabilities of selection in the within-household sampling are accounted for in the survey weights. Brief summaries of the within-household sampling for the various NHES administrations are given below, by year.

2016 NHES surveys. The NHES:2016 sample was selected using a two-stage address-based sampling frame. The first sampling stage selected residential addresses, and the second sampling stage selected an eligible sample person from information provided on the household mail screener. For all screeners and topical surveys, multiple follow-up attempts were made to obtain completed questionnaires from nonrespondents and questionnaires were sent in both English and Spanish.

The respondent to the ATES questionnaire was the target respondent chosen after the screener survey. ATES questionnaires were completed for 47,744 adults, for a weighted response rate of 73.1 percent and an overall estimated weighted unit response rate (the product of the screener weighted unit response rate and the ATES unit weighted response rate) of 48.5 percent.

The respondent to the ECPP questionnaire was a parent or guardian in the household who knew about the sampled child. ECPP questionnaires were completed for 5,844 children, for a weighted unit response rate of 73.4 percent and an overall estimated weighted unit response rate (the product of the screener weighted unit response rate and the ECPP unit weighted response rate) of 48.7 percent.

The respondent to the PFI questionnaire was also a parent or guardian in the household who knew about the sampled child. The total number of completed PFI questionnaires was 14,075, for a weighted unit response rate of 74.3 percent and an overall estimated weighted unit response rate (the product of the screener weighted unit response rate and the PFI unit weighted response rate) of 49.3 percent, representing 53.2 million students when weighted to reflect national totals.

2012 NHES surveys. NHES:2012 used a similar sampling selection to that used in 2016. Screener questionnaires were completed by 99,590 households, for a weighted screener unit response rate of 73.8 percent. ECPP questionnaires were completed for 7,893 children, for a weighted unit response rate of 78.7 percent and an overall estimated weighted unit response rate (the product of the screener weighted unit response rate and the ECPP unit weighted response rate) of 58.1 percent. The total number of completed PFI questionnaires was 17,563, representing a population of 53.4 million students when weighted to reflect national totals.

Data Collection and Processing

Prior to the NHES:2012 data collection, NHES program surveys were collected by Westat and used computer-assisted telephone interviewing (CATI). For the 2012 NHES survey, data collection was conducted by the U.S. Census Bureau utilizing printed mail surveys. The 2016 NHES survey data collection was also conducted by the U.S. Census Bureau, utilizing both printed mail surveys and online-web surveys. A user's manual for the 2016 administration is forthcoming.

Reference dates. Most questions in NHES that ask respondents to reference a period of time refer to the time of data collection or to the interval of time between the data collection and September of the school year for school-related activities, or the past 12-months for employment related activities. Other items are asked retrospectively for recent time frames. For example, respondents may be asked about activities in the past week or past month.

Data collection. Data collection for the NHES surveys typically takes place over a 4- to 8-month period beginning in January of each survey year. The 2016 NHES data collection was conducted from January to September 2016 using mailed surveys and online web-surveys, while data collections prior to 2012 used CATI, which required a

shorter time-frame. For NHES:2016, an address-based sample covering the 50 states and the District of Columbia was used. All sampled households received initial contact by mail. NHES screeners were then completed by adults at sampled addresses. An eligible household member, if any, was chosen from each returned screener. Then a topical survey was mailed either to the sampled adult or to the parent or guardian of the sampled child. Although the majority of respondents completed paper-and-pencil questionnaires, a small sample of households participating in NHES:2016 was part of a web experiment with mailed invitations to complete the survey online.

Editing. Intensive data editing is a feature of both the data collection and file preparation phases of the NHES collections. Data from the 2012 and 2016 mail surveys underwent a series of data processing procedures after receipt of the keyed questionnaire data. These procedures were data capture and imaging; the reformatting of keyed data; a preliminary interview status classification; a series of computer edits (to check that the data were in range, were consistent throughout a questionnaire record, and follow the correct skip pattern); school coding (where applicable); a final interview status classification; and a set of imputation procedures used to generate values for all appropriate questionnaire items with missing information. After imputation was completed, the editing procedures were repeated to ensure that no errors were introduced during imputation. Prior to NHES:2012, range checks for allowable values and logic checks for consistency between items were included in the online CATI interview so that many unlikely values or inconsistent responses could be resolved while the interviewer was speaking with the respondent.

Estimation Methods

The NHES surveys use weighting to adjust for the fact that the sampling method used is not simple random sampling. It is also used to adjust for potential undercoverage bias and potential unit nonresponse bias. Imputation is performed to compensate for item nonresponse. This section contains details on the 2012 and the 2016 data collections, which are designed similarly and use similar estimation methods.

Weighting. The objective of the NHES surveys is to make inferences about the entire noninstitutionalized, U.S. civilian population and about subgroups of interest. To accomplish this, weighting occurs in multiple stages: household-level weighting and person-level weighting, as described below.

Information from the screener was used to create the household-level base weights, including the probability of sampling each address from the sampling frame based on the race/ethnicity stratum and the probability of selection based on PO Boxes which were designated by the United States Postal Service (USPS) as the only way to get mail

(OWGM) versus those PO Boxes which were not OWGM. The household weight was then adjusted for screener nonresponse. The PO Box adjustment was not used in 2016 weighting adjustments, however the race/ethnicity adjustments were.

Starting in 2012, a within-household sampling scheme was developed to control the number of persons sampled for topical questionnaires in each household, to limit respondent burden. Eligible children were selected to receive either the ECPP survey or the PFI-Enrolled or PFI-Homeschooled survey, with no household receiving more than one survey. Responses were then weighted using the probabilities of selection of the respondents and other adjustments to account for nonresponse and coverage bias; the weight used for PFI estimates represented the characteristics of the school-age children, and the weight used for ECPP estimates represented the characteristics of the children not yet enrolled in kindergarten.

The person-level weight was computed to account for five factors: the probability of sampling the person's domain (ECPP, PFI, or ATES) in a given household, the probability of sampling the person of all eligible persons in the household for the given domain (ECPP, PFI, or ATES), the probability of sampling a child in a joint custody arrangement at both parents' addresses, nonresponse, and raking the nonresponse-adjusted person-level weights to national totals obtained using the number of children from the annual American Community Survey (ACS). ACS 2011 estimates were used for NHES:2012 and ACS 2015 estimates were used for NHES:2016. The Current Population Survey (CPS) was used for raking in prior NHES administrations, but ACS was used for NHES:2012 and NHES:2016 because its sample size was larger than CPS, allowing for more accurate control totals and greater precision in the NHES estimates. Please see *NHES:2012 Data File User's Manual* (McPhee et al., 2015) for additional information.

For NHES surveys prior to 2012, only households with landline telephones were sampled. Estimates were then adjusted to totals of persons living in both telephone and nontelephone households derived from the CPS to achieve this goal. CPS is an annual household survey conducted by the U.S. Bureau of the Census for the U.S. Bureau of Labor Statistics. As a result, any undercoverage in CPS for special populations, such as the homeless, is also reflected in NHES estimates. The potential for bias due to sampling only telephone households had been examined for virtually all the population groups sampled in NHES. Generally, the bias in the estimates due to excluding nontelephone households was small in 2007 and earlier.

Imputation. Item response rates for most data items collected in NHES surveys are very high. Nevertheless,

virtually all items with missing data (including "don't know" and "refused" responses) are imputed in NHES surveys. For more extensive information on item response rates, etc., please refer to the *NHES:2012 Data File User's Manual* (McPhee et al., 2015).

Imputations are done in the NHES program for three reasons. First, complete responses are needed for the variables used in developing the sampling weights. Second, data users compute estimates employing a variety of methods, and complete responses should aid their analysis. Third, imputation may reduce bias due to item nonresponse, by obtaining imputed values from donors that are similar to the recipients. The procedures for imputing missing data are discussed below.

A standard (random within-class) hot-deck procedure has been used to impute missing responses in every NHES data collection. In the hot-deck approach, the entire file is sorted into cells defined by characteristics of the respondents. The variables used in the sorting are general descriptors of the interview and include any variables involved in the skip pattern for the items. All of the observations are sorted into cells defined by the responses to the sort variables, and then divided into two classes within the cell depending on whether or not the item being imputed is missing. For an observation with a missing value, a value from a randomly selected donor (with the item completed) is used to replace the missing value. After the imputation is completed, edit programs are run to ensure that the imputed responses do not violate edit rules.

For some items, the missing values are imputed manually rather than using the hot-deck procedure, for example, (1) to impute certain person-level demographic characteristics; (2) to correct for a small number of inconsistent imputed values; and (3) to impute for a few cases when no donors with matching sort variable values could be found.

Some person-level characteristics (age confirmation, household relationships, and child and parent language) were imputed manually because they typically involve complex relationships and/or constraints that require special attention to ensure consistency and reasonableness.

After values have been imputed for all observations with missing values, the distribution of the item prior to imputation (i.e., the respondent's distribution) is compared to the post-imputation distribution of the imputed values alone and of the imputed values together with the observed values. This comparison is an important step in assessing the potential impact of item nonresponse bias and ensuring that the imputation procedure reduces this bias, particularly for items with relatively low response rates (less than 90 percent).

For each data item for which any values are imputed, an imputation flag variable is created so that users can identify imputed values. Users can employ the imputation flag to delete the imputed values, use alternative imputation procedures, or account for the imputation in computation of the reliability of the estimates produced from the dataset.

Recent Changes

As a result of declining response rates for all telephone surveys, and the increase in households that only or mostly use cellphones instead of landlines, the data collection method for 2012 was changed to a mail survey. The new design utilizes an address-based sample (ABS) and primarily collects data using a self-administered paper questionnaire that is mailed to sampled households. For more information about the mail data collection and ABS design, see *NHES:2012 Data File User's Manual* (McPhee et al., 2015).

Future Plans

The next NHES data collection is planned for 2019.

5. DATA QUALITY AND COMPARABILITY

In addition to the data quality activities inherent in the NHES design and survey procedures, activities designed specifically to assess data quality are undertaken for each collection. Reinterviews and analysis of coverage bias are two activities conducted during many survey administrations. Other data quality activities address specific concerns related to a topical survey. Issues of data quality and comparability are discussed below.

Sampling Error

In surveys with complex sample designs, such as NHES, direct estimates of sampling errors that assume a simple random sample will typically underestimate the variability in the estimates. Therefore, to accurately estimate variance, users must employ special calculations. The two major methods of producing approximate standard errors for complex samples are replication methods and Taylor series approximations. Special software is available for both methods, and the NHES data support either type of analysis. (Further information on the use of replication and Taylor Series methods is provided in *A Guide to Using Data from the National Household Education Survey* (Collins and Chandler, 1997).)

Taylor series stratum variables and replicate weights have been included in all of the NHES data files to make this application relatively simple. Various software packages, such as SAS, R and Stata survey packages, WesVar and SUDAAN, can properly apply these weights. For NHES:2016, the estimates and standard errors were produced using the jackknife 1 option as a replication

procedure. See also *NHES:2016 Data File User's Manual* (McPhee et al., 2018) for more specific information.

Nonsampling Error

Sample estimates also are subject to bias from nonsampling errors; however, it is more difficult to measure the magnitude of these errors. They can arise for a variety of reasons: nonresponse; undercoverage; differences in respondents' interpretations of the meaning of questions; memory effects; misrecording of responses; incorrect editing, coding, and data entry; time effects; or errors in data processing.

Coverage error. Every household survey is subject to some undercoverage bias—the result of some members of the target population being either deliberately or inadvertently missed in the survey. Telephone surveys, such as NHES administrations prior to 2012, are subject to an additional source of bias because not all households in the United States have telephones. Raking adjustments can reduce such coverage bias, though no adjustments have been found to adequately reduce the amount of bias across all measures that might be affected by coverage issues. Additionally, as the coverage bias increases, it becomes more difficult for raking to adequately adjust (see, e.g., Montaquilla, Brick, & Brock, 1997).

After NHES:2007, decreasing response rates and concerns regarding noncoverage of households without a landline telephone required NCES to redesign NHES. This redesign involved changing the sampling frame from a list-assisted Random Digit Dial (RDD) to an Address-Based Sample (ABS) frame. The NHES sample contains all types of residential addresses in order to ensure the best possible coverage of households in the United States. Addresses include street and city-style addresses, high rises, rural routes, PO Boxes, and addresses flagged as seasonal, vacant, drop points (a single postal delivery point for multiple housing units), PO Box throwbacks (a street address where the mail is delivered to a customer's PO box), and educational addresses (addresses identified as an educational facility such as colleges, universities, dormitories, and apartment buildings occupied by students). The mode of data collection has also changed from an interviewer-led telephone interview to a self-administered paper and pencil questionnaire mailed to respondents. The raking of the person-level weights was still required in order to align the person-level weights with the person-level control totals and adjust for differential coverage rates at the person level.

Nonresponse error. Nonresponse in NHES surveys is handled in ways designed to minimize the impact on data quality—through weighting adjustments for unit nonresponse and through imputation for item nonresponse.

Unit nonresponse. Household members are identified for extended interviews in a two-stage process. First, screener interviews are conducted to enumerate and sample households for the extended interviews. The failure to complete the first-stage screener means that it is not possible to enumerate and interview members of the household. The completion rate for the first stage is the percentage of screeners completed by households. The completion rate for the second stage is the percentage of sampled and eligible persons with completed interviews. The survey response rate is the product of the first- and second-stage completion rates (screener completion rate \times interview completion rate = survey response rate). All of the rates are weighted by the inverse of the units' probability of selection (see table NHES-1).

NHES:2016 sampling frame variables were used for the unit nonresponse bias analysis for the screener and topical surveys. Analysis of unit nonresponse bias showed evidence of bias based on the distributions of the sample characteristics for the survey respondents when compared to the full eligible sample. However, this bias was greatly reduced by the nonresponse weighting adjustments. See "Bias study" section below for further discussion, as well as the *NHES:2016 Data File User's Manual* (McPhee et al., 2018).

Item nonresponse. For most of the items collected in the NHES surveys, the item response rate is high. For example, for the ECPP and PFI surveys in NHES:2012, the median item response rates were 96.4 percent and 97.9 percent, respectively.

Measurement error. In order to assess item reliability and inform future NHES surveys, many administrations also included a subsample of respondents for a reinterview. Reinterviews were conducted for ECE-NHES:1991; both SR-NHES:1993 and SS&D-NHES:1993; AE-NHES:1995; both PFI-NHES:1996 and YCI-NHES:1996; and ASPA-NHES:2001, AEW-NHES:2003, and AE-NHES:2005.

In a reinterview, the respondent is asked to respond to the same items on different occasions. In order to limit the response burden of the reinterview program, only selected items are included in the reinterview. The item selection criteria focus on the inclusion of key survey statistics (e.g., frequency of reading to children), items that are expected to have a potential for measurement error based on cognitive laboratory or field-test findings, and items required to control the question skip patterns for the reinterview. The results of the reinterviews are used to modify subsequent NHES surveys and to give some guidance to users about the reliability of responses for specific items in the data files (see, e.g., *Use of Cognitive Laboratories and Recorded Interviews in the National Household Education Survey* [Nolin 1997].) However, the reinterview procedure does not

account for all measurement errors in the interviewing process, such as systematic errors that would be made in both the original interview and the reinterview.

Bias study. NHES:2016 included a bias analysis to evaluate whether nonresponse at the unit and item levels impacted the estimates. The term "bias" has a specific technical definition in this context: it is the expected difference between the estimate from the survey and the actual population value. For example, if all households were included in the survey (i.e., if a census was conducted rather than a sample survey), the difference between the estimate from the survey and the actual population value (which includes persons who did not respond to the survey) would be the bias due to unit nonresponse. Since NHES is based on a sample, the bias is defined as the expected or average value of this difference over all possible samples. Unit nonresponse bias, or the bias due to the failure of some persons or households in the sample to respond to the survey, can be substantial if either the difference between respondents and nonrespondents or the unit nonresponse rate is relatively large. The bias analysis included several analyses.

At the screener phase, significant differences were observed between respondents and the eligible sample in the distributions of characteristics available in or linked to the sample frame. Similarly, for each topical survey, significant differences were observed between respondents and the eligible sample in the distributions of characteristics available in or linked to the sample frame or collected on the screener. However, this observed bias was greatly reduced by the nonresponse weighting adjustments.

In another set of analyses, base-weighted key survey estimates for each topical survey were compared between (1) early and late screener respondents to assess the potential for bias resulting from screener-level nonresponse and (2) early and late topical respondents to assess the potential for bias resulting from topical-level nonresponse. To the extent that late respondents resemble nonrespondents in the characteristics measured by the NHES survey instruments, differences between early and late respondents suggest a potential for unit nonresponse bias in the estimates.

In another set of bias analyses, key survey estimates using the base weights and key estimates using the nonresponse adjusted weights were compared. Only a small number of measurable differences were observed. This suggests that few of these variables were powerful predictors of unit response. Therefore, the unit nonresponse adjustment had little effect on any potential bias. However, it is possible that little bias needed to be removed. It also is possible that unit nonresponse bias may still be present in other variables that were not studied. For this reason, it is important to

consider other methods of examining unit nonresponse bias. One such method is benchmarking, or comparing final NHES survey estimates to estimates from external sources. When estimates from the NHES:2016 surveys were compared with external estimates—from the CPS, the ACS, and previous administrations of NHES—some measurable differences were found. However, the majority of the differences were between estimates from the NHES:2016 and the previous administration of the NHES, 4 years prior to the current one; therefore, changes in the population across time are likely.

Data Comparability

Due to declining response rates for all telephone surveys, and due to the increase in the number of households that use cellphones instead of landlines, the 2012 data collection method was changed to a mail survey. As a result, readers should use caution when comparing estimates to prior NHES administrations. However, the NHES data can be compared with estimates from several other large-scale data collections, as described in the “Comparisons of topical data” section below.

Comparisons of methodology. For analysts wanting to compare the NHES surveys with another household survey, the Survey of Income and Program Participation (SIPP)—a longitudinal household survey conducted by the U.S. Bureau of the Census—provides an appropriate comparison. The first wave of data collection in SIPP is always done by personal visit to the household. Subsequent data collection is conducted primarily by telephone but may also be done in person. The response rates for SIPP are much higher than those that could be expected using an RDD screening sample, as in the NHES program. With personal interviews, there are more opportunities to obtain participation (including activities such as speaking with neighbors), and it is easier to demonstrate the importance of the sampled person’s cooperation. It should be noted that, while the difference in response rates is largely the result of the different modes of sampling and data collection, the Census Bureau’s response rates are generally higher than those achieved by other collection organizations.

Comparisons of topical data. Specific data from NHES surveys can be compared with data from several other surveys, as described below. Please note that after the 2007 collection, NHES was redesigned to use an address-based sample and self-administered paper and pencil surveys delivered and returned through the mail. The mode change required revisions to item wording and may affect the comparability of estimates from NHES data from 1991-2007 to those from NHES:2012 onward.

Early childhood program participation. Over the years, several NHES surveys have collected similar information on

young children’s care and education. Estimates from ECPP-NHES:2016 can be compared with previous NHES surveys: ECPP-NHES:2012, SR-NHES:2007, ECPP-NHES:2005, ECPP-NHES:2001, ECPP-NHES: 1995, ECE-NHES:1991, and SR-NHES:1993. Please note that surveys prior to 2012 required revisions to item wording, which may affect comparability. Estimates from ECPP-NHES:2016 can also be compared with data from CPS, SIPP and the ECLS program. The CPS October Education Supplement collects information on nursery school enrollment. (See Current Population Survey chapter.) CPS estimates of participation in early childhood programs and estimates of retention in early grades can be compared with NHES:2016 estimates. Additionally, SIPP (described above) periodically includes a supplement that collects information on the child care and early childhood program participation of children of mothers who are employed or enrolled in school or job training which is comparable with NHES data. Finally, the ECLS program (see the Early Childhood Longitudinal Study chapters) provides data to study a wide range of family, school, community and individual variables and their relationship to children’s development, early learning and early performance in school.

Adult training and education. ATES-NHES:2016 is a new survey that collected information on educational attainment, prevalence and characteristics of certifications and licenses and their holders, prevalence and characteristics of educational certificates and certificate holders, and completion and key characteristics of work experience programs such as apprenticeships and internships. ATES-NHES:2016 data cannot be compared to prior NHES data because ATES-NHES:2016 consists of new questions that focus on “adult training” whereas previous NHES surveys focused on “adult education”. Estimates from ATES-NHES:2016 may be comparable with NAAL (see National Assessment of Adult Literacy), which collects information on English literacy among American adults age 16 and older.

Parent and family involvement in education. Estimates from PFI-NHES:2016 can be compared to previous NHES surveys: PFI-NHES:2012, PFI-NHES:2007, PFI-NHES:2003, PFI-NHES:1996. Please note that surveys prior to 2012 required revisions to item wording, which may affect comparability. Estimates from PFI-NHES:2016 may also be comparable with ELS:2002 and HSLs:09 (see the Educational Longitudinal Study of 2002 and the High School Longitudinal Study of 2009 chapters). ELS:2002 obtains information not just from students and their school records, but also from students’ parents. HSLs:09 also obtains information on parent involvement of students from the beginning of high school into postsecondary education.

Table NHES-1. Weighted response rates for selected NHES surveys: 2012 and 2016

Questionnaire	Screener/1st stage	Interview/2nd stage	Overall
ECPP-NHES:2012	73.8	78.7	58.1
PFI-NHES:2012	73.8	78.4	57.8
ATES-NHES:2016	66.4	73.1	48.5
ECPP-NHES:2016	66.4	73.4	48.7
PFI-NHES:2016	66.4	74.3	49.3

SOURCE: NHES methodology reports; available at <https://nces.ed.gov/pubsearch/getpubcats.asp?sid=004>.

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7. METHODOLOGY AND EVALUATION REPORTS

General

Carver, P.R., and Iruka, I.U. (2006). *After-School Programs and Activities: 2005* (NCES 2006-076). U.S. Department of Education. Washington, DC: National Center for Education Statistics
<https://nces.ed.gov/pubs2006/2006076.pdf>

Corcoran, L., and Steinley, K. (2017). *Early Childhood Program Participation, Results from the National Household Education Surveys Program of 2016* (NCES 2017-101). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
<https://nces.ed.gov/pubs2017/2017101.pdf>.

Cronen, S., McQuiggan, M., and Isenberg, E. (2017). *Adult Training and Education: Results from the National Household Education Surveys Program of 2016* (NCES 2017-103rev), National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
<https://nces.ed.gov/pubs2017/2017103rev.pdf>.

Herrold, K., and O'Donnell, K. (2008). *Parent and Family Involvement in Education, 2006–07 School Year,*

From the National Household Education Surveys Program of 2007 (NCES 2008-050). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

<https://nces.ed.gov/pubs2008/2008050.pdf>

Iruka, I. U., and Carver, P. R. (2006). *Initial Results From the 2005 NHES Early Childhood Program Participation Survey* (NCES 2006-075). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

<https://nces.ed.gov/pubs2006/2006075.pdf>

Mamedova, S., and Redford, J. (2015). *Early Childhood Program Participation, From the National Household Education Surveys Program of 2012* (NCES 2013-029.REV), National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

<https://nces.ed.gov/pubs2013/2013029rev.pdf>

McQuiggan, M. and Megra, M. (2017). *Parent and Family Involvement in Education: Results from the National Household Education Surveys Program of 2016* (NCES 2017-102). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

<https://nces.ed.gov/pubs2017/2017102.pdf>.

Noel, A., Stark, P., and Redford, J. (2013). *Parent and Family Involvement in Education, From the National Household Education Surveys Program of 2012* (NCES 2013-028.REV2), National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

<https://nces.ed.gov/pubs2013/2013028rev.pdf>

O'Donnell, K. (2006). *Adult Education Participation in 2004-05* (NCES 2006-077). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

<https://nces.ed.gov/pubs2006/2006077.pdf>

- O'Donnell, K. (2008). *Parents' Reports of the School Readiness of Young Children from the National Household Education Surveys Program of 2007* (NCES 2008-051). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
<https://nces.ed.gov/pubs2008/2008051.pdf>
- U.S. Department of Education. National Center for Education Statistics. *Adult Civic Involvement in the United States*, NCES 97-906, by Mary Jo Nolin and Chris Chapman. Project Office: Kathryn Chandler. Washington, DC: 1997.
<https://nces.ed.gov/pubs97/97906.pdf>
- Vaden-Kiernan, N., and McManus, J. (2005). *Parent and Family Involvement in Education: 2002–03* (NCES 2005–043). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
<https://nces.ed.gov/pubs2005/2005043.pdf>
- Survey Design**
- Hagedorn, M., Roth, S.B., Carver, P., Van de Kerckhove, W., and Smith, S. (2009). *National Household Education Surveys Program of 2007: Methodology Report*. (NCES 2009-047). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
https://nces.ed.gov/pubs2009/2009047_1.pdf
- Nolin, M.J., Montaquila, J., Nicchitta, P., Collins Hagedorn, M., and Chapman, C. (2004). *National Household Education Surveys Program: 2001: Methodology Report* (NCES 2005-071). U.S. Department of Education, National Center for Education Statistics.
<https://nces.ed.gov/pubs2005/2005071.pdf>
- Roth, S., Montaquila, J., Chapman, C. (2006). *Nonresponse Bias in the 2005 National Household Education Surveys Program. Technical Report*. (NCES 2007-016). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.
<https://nces.ed.gov/pubs2007/2007016.pdf>
- U.S. Department of Education. National Center for Education Statistics. *An Experiment in Random-Digital Screening*, NCES 98-255, by J. Michael Brick, Mary Collins, and Kathryn Chandler. Washington, DC: 1997.
<https://nces.ed.gov/pubs98/98255.pdf>
- U.S. Department of Education. National Center for Education Statistics. *Feasibility of Conducting Followup Surveys in the National Household Education Survey*, NCES 97-335, by J. Michael Brick, Mary Collins, Elizabeth Davies, and Kathryn Chandler. Washington, DC: 1997.
<https://nces.ed.gov/pubs97/97335.pdf>
- U.S. Department of Education. National Center for Education Statistics. *Adjusting for Coverage Bias Using Telephone Service Interruption Data*, NCES 97-336, by J. Michael Brick, Scott Keeter, Joseph Waksberg, and Bridgett Bell. Kathryn Chandler, project officer. Washington, DC: 1996.
<https://nces.ed.gov/pubs/97336.pdf>
- U.S. Department of Education. National Center for Education Statistics. *Reinterview Results for the School Safety & Discipline and School Readiness Components*, NCES 97-339, by J. Michael Brick, Lou Rizzo, and Jacque Wernimont. Washington, DC: 1996.
<https://nces.ed.gov/pubs97/97339.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Survey. Measuring Participation in Adult Education*, NCES 97-341, by Mary A. Collins, J. Michael Brick, and Kwang Kim. Adult Education Project Officer, Peter Stowe. Washington, DC: 1997.
<https://nces.ed.gov/pubs97/97341.pdf>
- U.S. Department of Education. National Center for Education Statistics. *An Overview of the National Household Education Survey: 1991, 1993, 1995, and 1996*, NCES 97-448, by Mary Jo Nolin, Mary A. Collins, J. Michael Brick, and Kathryn Chandler. Washington, DC: 1997.
<https://nces.ed.gov/pubs97/97448.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Survey. An Overview of Response Rates in the National Household Education Survey: 1991, 1993, 1995, and 1996*. NCES 97–948, by J. Michael Brick, Mary Collins, and Kathryn Chandler. Washington, DC: 1997
<https://nces.ed.gov/pubs97/97948.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Survey of 1999: Methodology Report*, NCES 2000-078, by Mary Jo Nolin, Jill Montaquila, Patricia Nicchitta, Kwang Kim, Brian Kleiner, Jean Lennon, Christopher Chapman, Sean Creighton, and Stacey Bielick. Washington, DC:2000.
https://nces.ed.gov/pubs2000/2000078_14.pdf
- U.S. Department of Education. National Center for Education Statistics. *Issues Related to Estimating the*

Home-Schooled Population in the United States With National Household Survey Data, NCES 2000–311, by Robin R. Henke and Phillip Kaufman. Project Officers: Stephen P. Broughman and Kathryn Chandler. Washington, DC: 2000.

<https://nces.ed.gov/pubs2000/2000311.pdf>

Van de Kerckhove, W., Montaquila, J.M., Carver, P. R., and Brick, J.M. (2008). *An Evaluation of Bias in the 2007 National Households Education Surveys Program: Results From a Special Data Collection Effort* (NCES 2009–029). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

https://nces.ed.gov/pubs2009/2009029_1.pdf

Data Quality and Comparability

Chandler, K.A. (1994). *National Household Education Survey (NHES) of 1993: Early Childhood School Readiness Data File - User's Manual* (NCES 94-193). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Chandler, K.A. (1994). *National Household Education Survey (NHES) of 1993: School Safety and Discipline Data File - User's Manual* (NCES 94-218). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Collins, M.A., Brick, J.M., Kim, K., and Gilmore, S. (1996). *NHES 95: Adult Education Data File User's Manual* (NCES 96-826). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Collins, M.A., Brick, J.M., Loomis, L.S., and Gilmore, S. (1996). *NHES 95: Early Childhood Program Participation Data File User's Manual* (NCES 96-825). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Collins, M.A., Brick, J.M., Nolin, M.J., and Gilmore, S. (1997). *NHES 96: Data File User's Manual: Volume V: Adult Civic Involvement Data File* (NCES 97-421). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Collins, M.A., Brick, J.M., Nolin, M.J., and Gilmore, S. (1997). *NHES 96: Data File User's Manual: Volume IV: Youth Civic Involvement Data File* (NCES 97-422). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Collins, M.A., Brick, J.M., Nolin, M.J., Vaden-Kierman, N., and Gilmore, S. (1997). *NHES 96: Data File User's Manual: Volume III: Parent and Family Involvement in Education and Civic Involvement*

(NCES 97-423). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Collins, M.A., Brick, J.M., Nolin, M.J., Vaden-Kierman, N., and Gilmore, S. (1997). *NHES 96: Data File User's Manual: Volume I* (NCES 97-425). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Collins, M.A., and Chandler, K. (1997). *A Guide to Using Data from the National Household Education Survey (NHES)* (NCES 97-561). National Center for Education Statistics, U.S. Department of Education. Washington, DC.
<http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=97561>.

Hagedorn, M., Montaquila, J., Vaden-Kiernan, N., Kim, K., and Chapman, C. (2004). *National Household Education Surveys of 2003: Data File User's Manual, Volume I*. (NCES 2004-101). Washington, DC: U.S. Department of Education. National Center for Education Statistics.

<https://nces.ed.gov/pubs2004/2004101.pdf>

Hagedorn, M., Montaquila, J., Vaden-Kiernan, N., Kim, K., and Chapman, C. (2004). *National Household Education Surveys of 2003: Data File User's Manual, Volume II, Parent and Family Involvement in Education Survey*, NCES 2004-102. Washington, DC: U.S. Department of Education, National Center for Education Statistics.

<https://nces.ed.gov/pubs2004/2004102.pdf>

Hagedorn, M., Montaquila, J., Vaden-Kiernan, N., Kim, K., and Chapman, C. (2004) *National Household Education Surveys of 2003: Data File User's Manual, Volume III, Adult Education for Work-Related Reasons Survey*. (NCES 2004-103). Washington, DC: U.S. Department of Education.

<https://nces.ed.gov/pubs2004/2004103.pdf>

McPhee, C., Bielick, S., Masterton, M., Flores, L., Parmer, R., Amchin, S., Stern, S., and McGowan, H. (2015). *National Household Education Surveys Program of 2012: Data File User's Manual* (NCES 2015-030). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

https://nces.ed.gov/nhes/pdf/userman/NHES_2012_UsersManual.pdf

McPhee, C., Jackson, M., Bielick, S., Masterton, M., Battle, D., McQuiggan, M., Payri, M., Cox, C., and Medway, R. (2018). *National Household Education Surveys Program of 2016: Data File User's Manual* (NCES 2018-100). National Center for Education

- Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.
<https://nces.ed.gov/pubs2018/2018100.pdf>
- Montaquilla, J.M., Brick, J.M., and Brock, S.P. (1997). Undercoverage Bias in Estimates of Characteristics of Households and Adults in the 1996 National Household Education Survey (NCES Working Paper 97-39). National Center for Education Statistics, U.S. Department of Education. Washington, DC.
<https://nces.ed.gov/pubs97/9739.pdf>
- Nolin, M.J. (1997). *Use of Cognitive Laboratories and Recorded Interviews in the National Household Education Survey (NHES)* (NCES 96-332). National Center for Education Statistics, U.S. Department of Education. Washington, DC.
<https://nces.ed.gov/pubs/96332.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Survey of 1999: Data File User's Manual, Volume I*, NCES 2000-076, by Mary Jo Nolin, Jill Montaquila, Jean Lennon, Brian Kleiner, Kwang Kim, Christopher Chapman, Kathryn Chandler, Sean Creighton, and Stacey Bielick. Washington, DC: 2000
<https://nces.ed.gov/pubs2000/2000076.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Survey of 1999: Data File User's Manual, Volume IV*, NCES 2000-077, by Mary Jo Nolin, Jill Montaquila, Jean Lennon, Brian Kleiner, Kwang Kim, Christopher Chapman, Kathryn Chandler, Sean Creighton, and Stacey Bielick. Washington, DC: 2000.
<https://nces.ed.gov/pubs2000/2000077.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Survey of 1999: Data File User's Manual, Volume II*, NCES 2000-081, by Mary Jo Nolin, Jill Montaquila, Jean Lennon, Brian Kleiner, Kwang Kim, Christopher Chapman, Kathryn Chandler, Sean Creighton, and Stacey Bielick. Washington, DC: 2000.
<https://nces.ed.gov/pubs2000/2000081.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Survey of 1999: Data File User's Manual, Volume III*, NCES 2000-082, by Mary Jo Nolin, Jill Montaquila, Jean Lennon, Brian Kleiner, Kwang Kim, Christopher Chapman, Kathryn Chandler, Sean Creighton, and Stacey Bielick. Washington, DC: 2000.
<https://nces.ed.gov/pubs2000/2000082.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Surveys of 2001: Data File User's Manual, Volume I*, NCES 2003-079 by Mary Hagedorn, Jill Montaquila, Mary Jo Nolin, Kwang Kim, Brian Kleiner, Tiffany Waits, Christopher Chapman, and Kathryn Chandler. Washington, DC: 2003.
<https://nces.ed.gov/pubs2003/2003079.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Surveys of 2001: Data File User's Manual, Volume II, Early Childhood Program Participation Survey*, NCES 2003-080, by Mary Hagedorn, Jill Montaquila, Mary Jo Nolin, Kwang Kim, Brian Kleiner, Tiffany Waits, Christopher Chapman, and Kathryn Chandler. Washington, DC: 2003.
<https://nces.ed.gov/pubs2003/2003080.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Surveys of 2001: Data File User's Manual, Volume III, Before- and After-School Programs and Activities Survey*, NCES 2003-081, by Mary Hagedorn, Jill Montaquila, Mary Jo Nolin, Kwang Kim, Brian Kleiner, Tiffany Waits, Christopher Chapman, and Kathryn Chandler. Washington, DC: 2003.
<https://nces.ed.gov/pubs2003/2003081.pdf>
- U.S. Department of Education. National Center for Education Statistics. *National Household Education Surveys of 2001: Data File User's Manual, Volume IV, Adult Education and Lifelong Learning Survey*, NCES 2003-082, by Mary Hagedorn, Jill Montaquila, Mary Jo Nolin, Kwang Kim, Brian Kleiner, Tiffany Waits, Christopher Chapman, and Kathryn Chandler. Washington, DC: 2003.
<https://nces.ed.gov/pubs2003/2003082.pdf>