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National Household Education Surveys Program of 2019

Qualitative Study of Nonresponding Addresses

Appendices

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Appendix A. Additional Tables

Table A.3.1. Number and percentage distribution of data collection paradata, by address type: 2019

Data collection paradata	Address type: Addresses that participated in an interview — Number of addresses	Address type: Addresses that participated in an interview — Percentage of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Number of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Percentage of addresses
Total	**85**	**100.0**	**440**	**100.0**
Nonresponse study site				
Texas interview site	25	27.1	70	15.3
Connecticut	20	23.5	70	14.8
California	15	16.5	60	14.1
Ohio	30	32.9	70	15.7
Texas observation site	†	†	60	13.4
Illinois	†	†	60	12.5
Washington, DC	†	†	60	14.1
Nonresponse study interview language				
English only	70	83.5	†	†
Spanish only	10	10.6	†	†
Mix of English and Spanish	5	5.9	†	†
NHES:2019 final screener response status				
Responded	70	17.7	#	#
Did not respond	15	82.4	440	100.0
NHES:2019 undeliverable as addressed (UAA) mailings status				
One or more UAA mailings	5	3.5	#	#
No UAA mailings	80	96.5	440	100.0
NHES:2019 screener mailings language				
All bilingual mailings (English and Spanish)	25	29.4	170	38.3
Mix of bilingual mailings and English-only mailings	45	50.6	220	49.4
All English-only mailings	15	20.0	50	12.3

†Not applicable.
#Rounds to zero.
[1]This analysis is restricted to addresses for which household attributes were collected; household attributes were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multi-unit building but cannot gain entry to observe the sampled unit). Household attributes also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis.
NOTE: Sample sizes are rounded to the nearest 5 (interviewed addresses) or 10 (observed addresses). Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.3.2. Number and percentage distribution of household-level auxiliary data, by address type: 2019

Household-level auxiliary data[2]	Address type: Addresses that participated in an interview — Number of addresses	Address type: Addresses that participated in an interview — Percentage of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Number of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Percentage of addresses
Total	**85**	**100.0**	**440**	**100.0**
Age of head of household				
18–34	10	9.4	40	9.8
35–44	15	20.0	70	15.3
45–54	10	12.9	80	18.7
55–64	15	18.8	60	14.4
65 and older	10	11.8	50	11.9
Missing	25	27.1	130	30.1
Gender of head of household				
Male	25	31.8	140	32.4
Female	25	30.6	140	32.8
Missing	30	37.6	150	34.9
Education of head of household				
Less than high school credential	30	32.9	110	24.4
High school credential	20	21.2	70	15.7
Some college	20	21.2	100	23.7
Bachelor's degree	10	10.6	60	12.8
Graduate degree	5	5.9	40	8.0
Missing	5	8.2	70	15.5
Race/ethnicity of head of household				
White, non-Hispanic	35	38.8	150	34.2
Black, non-Hispanic	15	18.8	80	17.8
Hispanic	20	25.9	110	25.3
Other race, non-Hispanic	5	5.9	30	6.6
Missing	10	10.6	70	16.2
Household income				
Less than $50,000	40	49.4	180	40.8
$50,000–$74,999	10	14.1	60	13.7
$75,000–$99,999	10	12.9	50	11.4
$100,000 or higher	15	17.6	110	26.0
Missing	5	5.9	40	8.2
Household flagged as having children				
Yes	25	30.6	130	29.2
No	60	69.4	310	70.8

See notes at end of table.

Table A.3.2. Number and percentage distribution of household-level auxiliary data, by address type: 2019—Continued

Household-level auxiliary data[2]	Address type: Addresses that participated in an interview — Number of addresses	Address type: Addresses that participated in an interview — Percentage of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Number of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Percentage of addresses
Number of adults in household				
1 adult	55	62.4	240	54.9
2 adults	15	20.0	110	25.5
3 or more adults	10	11.8	50	11.4
Missing	5	5.9	40	8.2
Phone number available				
Yes	65	77.6	290	66.7
No	20	22.4	150	33.3
Route type				
Street	55	65.9	330	74.3
High rise	30	34.1	110	25.7
Dwelling type				
Single-unit	55	63.5	310	70.2
Multi-unit	30	36.5	130	29.8
Home tenure				
Own	35	43.5	260	58.5
Rent	40	49.4	140	30.8
Missing	5	7.1	50	10.7

[1]This analysis is restricted to addresses for which household attributes were collected; household attributes were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multi-unit building but cannot gain entry to observe the sampled unit). Household attributes also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis.
[2]The household-level auxiliary data are based on variables available on the NHES:2019 sampling frame.
NOTE: Sample sizes are rounded to the nearest 5 (interviewed addresses) or 10 (observed addresses). Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.3.3. Number and percentage distribution of area-level auxiliary data, by address type: 2019

Area-level auxiliary data	Address type: Addresses that participated in an interview — Number of addresses	Address type: Addresses that participated in an interview — Percentage of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Number of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Percentage of addresses
Total	**85**	**100.0**	**440**	**100.0**
Urbanicity[2]				
Urban	40	47.1	180	40.1
Suburban	45	51.8	240	54.4
Town	#	#	10	1.1
Rural	‡	‡	20	4.3
Region[2]				
Northeast	20	23.5	70	14.8
South	25	27.1	190	42.8
Midwest	30	32.9	120	28.3
West	15	16.5	60	14.1
Race/ethnicity stratum[3]				
25% or more Black	25	30.6	110	25.7
40% or more Hispanic	25	29.4	130	29.4
Other	35	40.0	200	44.9
Tract poverty rate[3]				
Less than 20%	45	52.9	300	68.6
20% or more	40	47.1	140	31.4
Percent of households in Census block that include a child[3]				
First quartile	20	21.2	100	22.6
Second quartile	25	27.1	100	22.3
Third quartile	15	17.7	100	23.5
Fourth quartile	30	34.1	140	31.7
Percent of persons in Census block that speak a language other than English[3]				
First quartile	10	14.1	40	9.3
Second quartile	15	20.0	70	15.7
Third quartile	20	24.7	140	31.2
Fourth quartile	35	41.2	190	43.7
Percent of persons in Census block without a high school diploma or the equivalent[3]				
First quartile	10	14.1	100	21.6
Second quartile	15	18.8	90	20.3
Third quartile	20	21.2	90	21.4
Fourth quartile	40	45.9	160	36.7

See notes at end of table.

Table A.3.3. Number and percentage distribution of area-level auxiliary data, by address type: 2019—Continued

Area-level auxiliary data	Address type: Addresses that participated in an interview — Number of addresses	Address type: Addresses that participated in an interview — Percentage of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Number of addresses	Address type: Observed, occupied, residential, nonrespondent addresses[1] — Percentage of addresses
Low Response Score[4]				
First quartile	15	15.3	100	23.1
Second quartile	10	12.9	80	18.0
Third quartile	25	28.2	90	20.8
Fourth quartile	35	43.5	170	38.1
Residential high-speed internet per 1000 households[5]				
600 or less	30	35.3	100	22.8
601-800	30	37.7	160	35.3
801 or more	25	27.1	180	41.9

#Rounds to zero.
‡Reporting standards not met. There are too few cases for a reliable estimate.
[1]This analysis is restricted to addresses for which household attributes were collected; household attributes were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multi-unit building but cannot gain entry to observe the sampled unit). Household attributes also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis.
[2]These characteristics are based on variables available on the NHES: 2019 sampling frame.
[3]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[4]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[5]This characteristic is based on tract-level estimates of Internet penetration provided by the Federal Communications Commission (FCC).
NOTE: Sample sizes are rounded to the nearest 5 (interviewed addresses) or 10 (observed addresses). Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table A.3.4. Number and percentage distribution of structure type observation for addresses that participated in an interview: 2019

Structure type	Number of addresses	Percentage of addresses
Total	**80**	**100.0**
Single-unit	50	59.3
Attached[1]	10	9.9
Apartment[2]	25	30.9
Could not determine	#	#

#Rounds to zero.
[1]Attached structures include duplexes, townhouses, and rowhouses.
[2]Apartment structures include low-, medium-, and high-rise apartments.
NOTE: Structure type observations were not collected for addresses that could not be observed (e.g., cannot locate the address). Addresses that were observed to be nonresidential were excluded from this analysis. Sample sizes are rounded to the nearest 5. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.3.5. Percentage of addresses that participated in an interview with observed household attributes: 2019

Observed household characteristics, attributes, and interests	Percentage of addresses
Household member characteristics	
Presence of children[1]	27.4
Speaking a language other than English[2]	5.5
Household member attributes and interests	
Privacy or security concerns[3]	27.4
Outdoor living[4]	27.4
Patriotism[5]	8.2
Welcoming decor[6]	2.7
Internet or television connectivity[7]	8.2
Community involvement[8]	2.7
Importance of religion[9]	‡
Pride in education[10]	‡
Other outdoor decor[11]	20.6

‡Reporting standards not met. There are too few cases for a reliable estimate.
[1]Addresses where children are thought to be present are those where observers identified indicators that suggest the children live in the sampled unit. Examples include toys, bikes, car seats, strollers, outdoor swings/play sets, and child finder stickers for firefighters.
[2]Addresses that speak a language other than English are those where observers identified indicators that people in the sampled unit may speak a language other than English. Examples include flags for non-English-speaking countries, in-home business signs, yard/window signs, or bumper stickers written in another language at the sampled unit; or a large number of flags, signs, or bumper stickers in (or including) another language in the surrounding neighborhood (even if indicators are not observed at the sampled unit).
[3]Addresses with privacy or security concerns are those where observers identified indicators that privacy or security is important to those living in the sampled unit. Examples include surveillance cameras, driveway gates, security company signs or stickers, and "No trespassing" signs. For multi-unit buildings, indicators that focused on the larger building in which the unit was located, such as entry buzzers or fences, were not included because they could be not directly associated with the sampled unit.
[4]Addresses that value outdoor living are those where observers identified indicators that people in the sampled unit spend time outdoors. Examples include patio furniture, porch swings/benches, swing sets, sporting goods, and grills. This variable was added during data processing based on patterns observed in write-in responses.
[5]Addresses that value patriotism are those where observers identified indicators of American national or state-specific patriotism. They also include those with indicators of current or past involvement with the U.S military or pride in the U.S. military.
[6]Addresses with welcoming decor are those where observers noted the presence of an object that welcomes visitors to the sampled unit, such as a welcome mat or welcome sign that explicitly says “welcome.” This variable was added during data processing based on patterns observed in write-in responses.
[7]Addresses with Internet or television connectivity are those where observers noted the presence of a satellite, cable, DirectTV dish or other electronic equipment, or a sign that indicates television or internet connectivity at the sampled unit. This variable was added during data processing based on patterns observed in write-in responses.
[8]Addresses with community involvement are those where observers identified indicators that people in the sampled unit are involved in the community. Examples include political candidate signs or indicators of being involved with charities, kids' sports/clubs, or neighborhood associations.
[9]Addresses that value religion are those where observers identified indicators that suggest that religion is important to the people in the sampled unit. Examples include “Bless this House” signs, religious figures or statues, or Mezuzahs. This variable was added during data processing based on patterns observed in write-in responses.
[10]Addresses with pride in education are those where observers identified indicators that education is important to the sampled unit. Examples include school, college and/or university flags or stickers; honor roll bumper stickers; or other indicators of pride in a child’s school.
[11]Addresses with other outdoor decor are those where observers noted the presence of items used to decorate the exterior of the sampled unit. Examples include gnomes, flamingos, yard art, decorative flags, wreaths, Easter decorations, water features, or windchimes. This attribute focuses only on decorative items and does not include items that represent another household attribute shown in the table (e.g., American flags were coded under patriotism only). This variable was added during data processing based on patterns observed in write-in responses.
NOTE: Percentages represent the percentage of addresses for which the attribute was observed. Household attributes were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multi-unit building but cannot gain entry to observe the sampled unit). Household attributes also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant. The rounded eligible sample size for addresses that participated in an interview is 75. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.4.1. Number and percentage distribution of mail access type observation for observed, residential, nonrespondent addresses: 2019

Mail access type	Number of addresses	Percentage of addresses
Total	**530**	**100.0**
Mail slot	30	6.0
Mailbox attached to the home	160	30.9
Mailbox at the end of the driveway	110	20.0
Mailbox across the street or at the end of the road	60	10.7
Mailbox, slot, or room in a multi-unit building	80	14.9
More than one type of mail access[1]	‡	‡
No mailbox or slot in view	40	7.5
Could not determine	50	9.6

‡Reporting standards not met. There are too few cases for a reliable estimate.
[1]This category includes addresses where mail could have been received in more than way (e.g., a house that has both a mail slot in the door and a mailbox at the end of the driveway).
NOTE: Mail access type observations were not collected for addresses that could not be observed (e.g., cannot locate the address) or were observed to be nonresidential or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.4.2. Number and percentage distribution of mail access type observation for addresses that participated in an interview: 2019

Mail access type	Number of addresses	Percentage of addresses
Total	**80**	**100.0**
Mail slot or mailbox attached to the home[1]	40	46.9
Mailbox at the end of the driveway, across the street, or at the end of the road	25	28.4
Mailbox, slot or room in multi-unit building	5	8.6
No mailbox or slot in view	10	12.4
Could not determine	5	3.7

[1]A few cases where mail was received in more than one way were categorized under "mail slot or mailbox attached to the home" since all the ways mail was received fit that category.
NOTE: Mail access type observations were not collected for addresses that could not be observed (e.g., cannot locate the address) or were observed to be nonresidential or permanently vacant. Sample sizes are rounded to the nearest 5. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.4.3. Percentage distribution of interview participants' self-reported engagement with example mailings, by example mailing: 2019

Example mailing	Self-reported engagement[1]		
	Would engage	Would not engage	Unclear
U.S. Department of Commerce envelope	91.8	8.2	#
Personal notecard envelope	89.4	7.1	3.5
National Center for Public Opinion Research envelope	88.2	7.1	4.7
National Council for Education envelope	78.8	20.0	‡
Dentist card	71.8	24.7	3.5
Utility company envelope	61.2	36.5	2.4
National Customer Support Center envelope	56.5	42.4	‡
Insurance envelope	55.3	44.7	#
Candidate forum flyer	42.4	51.8	5.9
Box store circular	42.4	52.9	4.7
Mail order catalog	41.2	52.9	5.9
Quality Bankers envelope	30.6	68.2	‡

#Rounds to zero.

‡Reporting standards not met. There are too few cases for a reliable estimate.

[1]Engagement was determined based on participants' reaction to each example mailing. In the small number of cases where more than one household member participated in the interview, engagement was based on the primary interview participant's reaction to the mailing. Participants who "would engage" are those who stated they would open, read, or keep the mailing. Participants who "would not engage" are those who stated they would not open, read, or keep the mailing. Participants who provided conflicting responses (e.g., would open but throw away) were placed in the "would engage" group. "Unclear" participants are those who did not clearly state whether they would open, read, or keep the mailing.

NOTE: The total number of interview participants was 85. Details may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.4.4. Percentage of interview participants that would engage with the mailing, by example mailing and selected characteristics: 2019

Selected characteristics	Number of participants	Example mailing: U.S. Department of Commerce envelope	Personal notecard envelope	National Center for Public Opinion Research envelope	National Council for Education envelope	Dentist card	Utility company envelope	National Customer Support Center envelope	Insurance envelope	Candidate forum flyer	Box store circular	Mail order catalog	Quality Bankers envelope
Nonresponse study site													
West South Central interview site	25	91.3	87.0	78.3	78.3	60.9	52.2	65.2	60.9	39.1	43.5	52.2	34.8
New England interview site	20	90.0	90.0	95.0	80.0	80.0	85.0	55.0	60.0	60.0	45.0	40.0	30.0
Pacific interview site	15	92.9	100.0	92.9	85.7	78.6	85.7	78.6	64.3	57.1	50.0	50.0	28.6
East North Central interview site	30	92.9	85.7	89.3	75.0	71.4	39.3	39.3	42.9	25.0	35.7	28.6	28.6
Nonresponse study interview language													
English only	70	93.0	88.7	90.1	77.5	70.4	59.2	54.9	54.9	40.8	40.8	39.4	31.0
Spanish only	10	88.9	88.9	77.8	77.8	77.8	66.7	44.4	55.6	44.4	55.6	55.6	33.3
Mix of English and Spanish	5	80.0	100.0	80.0	100.0	80.0	80.0	100.0	60.0	60.0	40.0	40.0	‡
NHES:2019 final screener response status													
Responded	15	93.3	93.3	100.0	80.0	66.7	66.7	53.3	60.0	40.0	46.7	53.3	26.7
Did not respond	70	91.4	88.6	85.7	78.6	72.9	60.0	57.1	54.3	42.9	41.4	38.6	31.4
Age[1]													
18–24	10	88.9	100.0	77.8	88.9	88.9	88.9	100.0	88.9	22.2	44.4	33.3	55.6
25–34	15	86.7	80.0	86.7	80.0	53.3	60.0	73.3	46.7	46.7	40.0	33.3	13.3
35–44	20	83.3	94.4	88.9	77.8	83.3	72.2	50.0	61.1	61.1	55.6	55.6	38.9
45–54	20	100.0	89.5	94.7	68.4	68.4	52.6	52.6	47.4	42.1	36.8	36.8	21.1
55–64	15	100.0	78.6	78.6	85.7	71.4	50.0	42.9	42.9	21.4	42.9	42.9	28.6
65 and older	10	87.5	100.0	100.0	75.0	62.5	37.5	37.5	62.5	37.5	25.0	37.5	37.5
Gender[1]													
Male	35	94.1	94.1	91.2	76.5	76.5	64.7	58.8	61.8	44.1	35.3	26.5	41.2
Female	50	90.0	86.0	88.0	80.0	70.0	60.0	56.0	52.0	42.0	46.0	50.0	24.0
Refused	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Race/ethnicity[1]													
White, non-Hispanic	25	92.0	92.0	96.0	72.0	56.0	64.0	56.0	48.0	36.0	36.0	24.0	32.0
Black, non-Hispanic	25	88.9	85.2	81.5	77.8	74.1	51.9	48.1	59.3	37.0	40.7	44.4	25.9
Hispanic	25	91.3	95.7	82.6	91.3	82.6	78.3	69.6	69.6	56.5	56.5	56.5	43.5
Other race, non-Hispanic	5	100.0	83.3	100.0	83.3	66.7	50.0	66.7	‡	33.3	33.3	50.0	#
Refused	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡

See notes at end of table.

Table A.4.4. Percentage of interview participants that would engage with the mailing, by example mailing and selected characteristics: 2019—Continued

Selected characteristics	Number of participants	Example mailing: U.S. Department of Commerce envelope	Personal notecard envelope	National Center for Public Opinion Research envelope	National Council for Education envelope	Dentist card	Utility company envelope	National Customer Support Center envelope	Insurance envelope	Candidate forum flyer	Box store circular	Mail order catalog	Quality Bankers envelope
Education[1]													
High school or less	40	89.5	92.1	89.5	78.9	84.2	65.8	55.3	68.4	50.0	57.9	50.0	47.4
Some college, but no bachelor's degree	25	96.0	80.0	80.0	68.0	52.0	52.0	48.0	44.0	28.0	40.0	52.0	20.0
Bachelor's degree	15	93.3	93.3	93.3	86.7	73.3	60.0	60.0	40.0	46.7	13.3	13.3	13.3
Graduate degree	5	85.7	100.0	100.0	100.0	71.4	71.4	85.7	57.1	42.9	28.6	‡	‡
Enrollment status[1]													
Enrolled	10	90.0	100.0	90.0	90.0	90.0	80.0	90.0	80.0	50.0	30.0	50.0	40.0
Not enrolled	75	91.9	87.8	87.8	78.4	70.3	58.1	52.7	51.4	41.9	44.6	40.5	29.7
Refused	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Employment status[1]													
Employed for pay	60	93.1	89.7	87.9	81.0	72.4	56.9	55.2	53.4	39.7	37.9	36.2	29.3
Not employed for pay	25	88.9	88.9	88.9	74.1	70.4	70.4	59.3	59.3	48.1	51.9	51.9	33.3
Household income[1]													
$30,000 or less	25	91.3	91.3	91.3	78.3	69.6	69.6	65.2	56.5	30.4	56.5	43.5	30.4
$30,001–$60,000	20	95.5	100.0	90.9	95.5	77.3	63.6	81.8	63.6	54.5	45.5	54.5	31.8
$60,001–$100,000	15	92.9	85.7	85.7	71.4	64.3	57.1	35.7	35.7	42.9	42.9	28.6	28.6
$100,001 or higher	15	92.9	92.9	92.9	57.1	71.4	50.0	57.1	42.9	28.6	21.4	21.4	28.6
Refused	10	83.3	66.7	75.0	83.3	75.0	58.3	16.7	75.0	58.3	33.3	50.0	33.3
Language spoken most often by adults in the household[1]													
English	65	92.5	88.1	89.6	76.1	68.7	58.2	53.7	53.7	40.3	43.3	41.8	31.3
Spanish	15	84.6	92.3	76.9	84.6	84.6	69.2	61.5	61.5	46.2	46.2	46.2	30.8
English/Spanish equally	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Other	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Home internet access[1]													
No access	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡
Phone/tablet access only	20	94.4	94.4	72.2	83.3	77.8	55.6	61.1	55.6	38.9	66.7	50.0	33.3
Computer	65	90.6	87.5	92.2	78.1	70.3	60.9	54.7	56.3	42.2	34.4	39.1	28.1
Refused	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡

See notes at end of table.

Table A.4.4. Percentage of interview participants that would engage with the mailing, by example mailing and selected characteristics: 2019—Continued

Selected characteristics	Number of participants	Example mailing: U.S. Department of Commerce envelope	Personal notecard envelope	National Center for Public Opinion Research envelope	National Council for Education envelope	Dentist card	Utility company envelope	National Customer Support Center envelope	Insurance envelope	Candidate forum flyer	Box store circular	Mail order catalog	Quality Bankers envelope
Child in household[1]													
Yes	45	90.7	88.4	86.0	76.7	69.8	53.5	53.5	55.8	44.2	39.5	37.2	32.6
No	30	92.9	90.5	90.5	81.0	73.8	69.0	59.5	54.8	40.5	45.2	45.2	28.6
Number of adults in household[1]													
1 adult	25	84.0	92.0	84.0	64.0	64.0	60.0	60.0	56.0	44.0	48.0	40.0	20.0
2 adults	40	95.1	87.8	87.8	85.4	73.2	53.7	48.8	46.3	43.9	36.6	39.0	29.3
3 or more adults	20	94.7	89.5	94.7	84.2	78.9	78.9	68.4	73.7	36.8	47.4	47.4	47.4

‡Reporting standards not met. There are too few cases for a reliable estimate.
[1]These characteristics are based on self-reports provided by interview participants.
NOTE: Response behavior was determined based on participants' reaction to each example mailing. In the small number of cases where more than one household member participated in the interview, engagement was based on the primary interview participant's reaction to the mailing. Participants who "would engage" are those who stated they would open, read, or keep the mailing. The total number of interview participants was 85. Sample sizes are rounded to the nearest 5. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.5.1. Percentage distribution of NHES:2019 screener mailing recall, by screener mailing: 2019

Screener mailing	Recalls	Does not recall	Unclear
At least one mailing	**76.5**	**21.2**	**2.4**
Initial screener package	60.0	36.5	3.5
Pressure-sealed envelope	41.2	47.1	11.8
Second screener package	35.3	52.9	11.8
Third screener package	48.2	45.9	5.9
Fourth screener package	36.5	54.1	9.4
FedEx package[1]	36.5	54.1	9.4
First Class mail package[1]	35.3	52.9	11.8

[1]NHES:2019 included an experiment that varied which of the reminder mailings was sent via FedEx. Some participants were sent the second screener package via FedEx and others were sent the fourth screener package via FedEx. They were sent the other of these two packages by First Class mail. The estimates reported here show the recall of the FedEx or First Class mail reminder regardless of the timing of receipt.
NOTE: Percentages are based on interview participants' self reports during an activity where they were shown the NHES:2019 screener mailings. It is possible that additional participants received the mailings but either did not recall doing so or did not mention it during the interview. It is also possible that a different household member would have recalled the mailing. In the small number of cases where more than one household member participated in the interview, recall is based on the primary interview participant's recall of the mailing. Rounded number of eligible interview participants is 85. Details may not sum to totals due to rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.7.1. Number and percentage distribution of observation outcome for nonrespondent addresses sampled for observation component: 2019

Observation outcome	Number of addresses	Percentage of addresses
Total	**590**	**100.0**
Observed	450	76.1
Partially observed, could observe the exterior of the multi-unit building but not the sampled unit[1]	100	16.8
Not observed, could not access address[2]	20	2.5
Not observed, could not locate address[3]	20	2.9
Not observed, other reason[4]	10	1.7

[1]Partially observed addresses are those where the observer was able to observe the exterior of the multi-unit building but was not able to enter the building to observe the interior entry to the sampled unit.
[2]Addresses that could not be accessed are those where observers could not get close enough to confirm whether the address existed (for example, if the address was in a gated community to which the observer could not gain access).
[3]Addresses that could not be located are those where the observer was able to access the location where the address should have been, but the observer could not find any evidence that the address existed.
[4]Addresses that were not observed for another reason were those where the observer could not make the observation for reasons other than not being able to access or locate the address (for example, because the observer was concerned about safety).
NOTE: Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.7.2. Percentage distribution of observation outcome for nonrespondent addresses sampled for observation component, by selected characteristics: 2019

Selected characteristics	Number of addresses	Observation outcome[1]			Chi-square statistic
		Observed	Partially observed	Not observed	
Total	**590**	**76.1**	**16.8**	**7.1**	†
NHES:2019 screener mailings language					3.13
All bilingual mailings (English and Spanish)	230	74.7	16.7	8.6	
Mix of bilingual mailings and English-only mailings	290	75.6	17.5	6.9	
All English-only mailings	70	83.1	13.9	‡	
Age of head of household[2]					34.39 *
18–34	50	79.6	16.7	‡	
35–44	80	82.7	12.4	4.9	
45–54	90	90.2	6.5	3.3	
55–64	80	81.5	12.4	6.2	
65 and older	70	80.0	12.3	7.7	
Missing	220	63.4	25.9	10.7	
Gender of head of household[2]					16.07 *
Male	180	79.3	13.4	7.3	
Female	180	83.4	10.9	5.7	
Missing	240	68.1	23.8	8.1	
Education of head of household[2]					57.58 *
Less than high school credential	130	83.1	10.0	6.9	
High school credential	90	80.9	12.4	6.7	
Some college	120	86.3	8.1	5.7	
Bachelor's degree	70	75.7	18.9	5.4	
Graduate degree	40	85.4	7.3	7.3	
Missing	130	53.4	36.6	9.9	
Race of head of household[2]					57.42 *
White, non-Hispanic	190	81.8	13.4	4.8	
Black, non-Hispanic	100	80.8	9.1	10.1	
Hispanic	130	85.5	7.6	6.9	
Other race, non-Hispanic	40	80.6	19.4	#	
Missing	140	54.4	35.3	10.3	
Household income[2]					46.82 *
Less than $50,000	250	74.4	16.7	8.9	
$50,000–$74,999	70	89.6	9.0	‡	
$75,000–$99,999	60	85.0	13.3	‡	
$100,000 or higher	140	83.1	11.3	5.6	
Missing	70	48.6	37.8	13.5	
Household flagged as having children[2]					24.61 *
Yes	140	91.5	5.0	3.6	
No	450	71.2	20.5	8.3	

See notes at end of table.

Table A.7.2. Percentage distribution of observation outcome for nonrespondent addresses sampled for observation component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observation outcome[1]			Chi-square statistic
		Observed	Partially observed	Not observed	
Number of adults in household[2]					56.96 *
1 adult	330	74.4	19.3	6.3	
2 adults	130	88.5	4.6	6.9	
3 adults or more	50	94.3	‡	‡	
Missing	70	48.6	37.8	13.5	
Phone number available[2]					27.60 *
Yes	360	82.6	10.5	6.9	
No	230	65.6	26.9	7.5	
Route type[2]					145.00 *
Street	370	91.3	2.7	6.0	
High rise	220	51.1	39.9	9.0	
Dwelling type[2]					145.37 *
Single-unit	340	92.9	1.5	5.6	
Multi-unit	250	53.0	37.8	9.2	
Home tenure[2]					77.00 *
Own	290	88.8	5.8	5.4	
Rent	200	71.3	22.1	6.7	
Missing	100	48.0	39.0	13.0	
Urbanicity[2]					39.78 *
Urban	270	67.9	24.6	7.5	
Suburban	290	83.7	11.1	5.2	
Town	‡	‡	‡	‡	
Rural	‡	‡	‡	‡	
Region[2]					6.26
Northeast	80	79.3	14.6	6.1	
South	250	78.1	13.4	8.5	
Midwest	170	73.8	20.4	5.8	
West	90	71.6	21.6	6.8	
Race/ethnicity stratum[3]					0.23
25% or more Black	150	75.2	17.7	7.2	
40% or more Hispanic	170	77.2	15.8	7.0	
Other	270	75.9	17.0	7.2	
Tract poverty rate[3]					3.44
Less than 20%	390	78.1	14.8	7.1	
20% or more	200	72.1	20.8	7.1	

See notes at end of table.

Table A.7.2. Percentage distribution of observation outcome for nonrespondent addresses sampled for observation component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observation outcome[1]			Chi-square statistic
		Observed	Partially observed	Not observed	
Percent of households in Census block that include a child[3]					32.68 *
First quartile	160	64.1	28.9	7.1	
Second quartile	120	83.2	13.5	3.4	
Third quartile	140	76.6	10.6	12.8	
Fourth quartile	170	81.5	13.3	5.2	
Percent of persons in Census block that speak a language other than English[3]					3.91
First quartile	50	84.0	10.0	6.0	
Second quartile	100	74.7	16.8	8.4	
Third quartile	180	76.4	15.4	8.2	
Fourth quartile	260	74.8	19.1	6.1	
Percent of persons in Census block without a high school diploma or the equivalent[3]					11.31
First quartile	140	69.5	18.4	12.1	
Second quartile	110	83.3	13.9	2.8	
Third quartile	130	75.0	19.5	5.5	
Fourth quartile	210	77.4	15.6	7.1	
Low Response Score[4]					36.31 *
First quartile	110	91.1	‡	7.1	
Second quartile	100	86.3	10.5	3.2	
Third quartile	130	70.5	23.3	6.2	
Fourth quartile	250	68.3	22.6	9.1	
Residential high-speed internet per 1000 households[5]					5.48
600 or less	140	74.1	17.3	8.6	
601-800	220	72.2	20.4	7.4	
801 or more	230	80.8	13.3	6.0	

†Not applicable.
#Rounds to zero.
‡Reporting standards not met. There are too few cases for a reliable estimate.
* $p < 0.05$
[1]Partially observed addresses are those where the observer was able to observe the exterior of the multi-unit building, but was not able to enter the building to observe the interior entry to the sampled unit. Addresses that were not observed include those where observers could not get close enough to confirm that the address existed (for example, if the address was in a gated community); addresses that could not be located (the observer was able to access the location where the address should have been, but the observer could not find any evidence that the address existed); and addresses that were not observed for another reason (for example, the observer was concerned about safety).
[2]These characteristics are based on variables available on the NHES:2019 sampling frame.
[3]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[4]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[5]This characteristic is based on tract-level estimates of Internet penetration provided by the Federal Communications Commission (FCC).
NOTE: Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table A.7.3. Wald joint significance tests from multinomial logistic regression predicting observability, by independent variables: 2019

Independent variables	Wald test statistic
NHES:2019 bilingual screener mailings status	2.81
Age of head of household[1]	5.78
Gender of head of household[1]	3.65
Education of head of household[1]	12.17
Race of head of household[1]	12.27
Household income[1]	10.53
Whether household flagged as having children[1]	3.82
Number of adults in household[1]	1.75
Whether phone number available[1]	9.09 *
Route type[1]	7.95 *
Dwelling type[1]	7.83 *
Home tenure[1]	3.30
Urbanicity[1]	16.90 *
Region[1]	25.05 *
Race/ethnicity stratum[2]	2.97
Tract poverty rate[2]	6.03 *
Percent of households in Census block that include a child[2]	16.06 *
Percent of persons in Census block that speak a language other than English[2]	6.02
Percent of persons in Census block without a high school diploma or the equivalent[2]	11.43
Low Response Score[3]	11.52
Residential high-speed internet per 1000 households[4]	6.52

*$p < .05$.
[1]These variables are available on the NHES:2019 sampling frame.
[2] These characteristics are based on American Community Survey (2013-2017) five-year estimates.
[3]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[4]This variable is based on tract-level estimates of Internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The dependent variable is a collapsed version of the observability variable with three categories—observed, partially observed, and not observed. "Not observed" is the reference category. Missing values on the independent variables are treated as a separate category. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. The pseudo R2 value for the model is 0.43. The rounded sample size is 590.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table A.7.4. Number and percentage distribution of residential occupancy status observation for nonrespondent addresses sampled for observation component: 2019

Residential occupancy status	Number of addresses	Percentage of addresses
Total	**550**	**100.0**
Occupied residential unit	400	72.6
Residential unit, could not determine occupancy status	140	25.8
Vacant residential unit[1]	10	1.5
Vacant lot	‡	‡
Commercial business	#	#

#Rounds to zero.
‡Reporting standards not met. There are too few cases for a reliable estimate.
[1]Vacant residential unit includes: (1) temporarily vacant addresses where the unit had a for sale or for rent sign or a lock box and there was no evidence of current occupants, (2) seasonally vacant addresses where the unit was located in a resort area and was well-maintained enough to suggest that it had tenants during other parts of the year, but there were no evidence of current occupants, and (3) permanently vacant addresses where the address appeared uninhabitable (e.g., boarded windows/doors, holes in the walls or roof), was condemned or was under construction.
NOTE: Residential occupancy status was not collected for addresses that were not able to be observed (for example, for addresses that could not be located). Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table A.7.5. Agreement rate between frame and observation variables for addresses with inconsistent undeliverable as addressed (UAA) NHES:2019 mailing outcomes, by selected characteristics: 2019

Selected characteristics	Agreement rate
Occupancy status	
Total	82.1
Occupancy status on frame[1]	
Vacant[2]	50.0
Occupied	87.9
Occupancy status observation[3]	
Vacant[2]	42.9
Occupied	90.6
Structure type	
Total	86.8
Structure type on frame[1]	
Single-unit	68.2
Multi-unit	95.7
Structure type observation[3]	
Single-unit	88.2
Attached[4]	40.0
Apartment[5]	‡
Presence of children	
Total	88.1
Presence of children on frame[1]	
Yes	‡
No or unknown	92.1
Presence of children observation[3]	
Yes	40.0
No or unclear	94.6
Household income[6]	
Total	48.1
Household income on frame[1]	
Bottom third	52.0
Middle third	66.7
Top third	16.7
Household income observation[3]	
Bottom third	59.1
Middle third	38.5
Top third	50.0

‡Reporting standards not met. There are too few cases for a reliable estimate.
[1]These characteristics are based on variables available on the NHES:2019 sampling frame.
[2]For frame data, vacant addresses were those flagged as being vacant. For observed data, vacant addresses include those that were seasonally, temporarily, and permanently vacant.
[3]These characteristics are based on address observations collected as part the qualitative nonresponse study.
[4]Attached structures include duplexes, townhouses, and rowhouses.
[5]Apartment structures include low-, medium-, and high-rise apartments.
[6]For frame data, the bottom third includes those addresses with household incomes less than $50,000; the middle third includes those addresses with household incomes $50,000 to $99,999; the top third includes those addresses with household incomes of $100,000 or more. These cutoff points were based on a combination of the distribution of household income in the United States in 2019 and the pre-existing income ranges available on the NHES sampling frame. For observed data, observers were asked to provide their best estimate of whether the address's household income was in the bottom third, middle third, or top third of as compared to other households across the United States.
NOTE: The agreement rate is the percentage of addresses observed to have the same characteristic as found in the frame. Each analysis in this table is limited to cases that had data available from both sources. Rounded number of eligible cases is 70 for structure type, 40 for occupancy status, 40 for presence of children, and 50 for household income. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019

Appendix B. Additional Qualitative Nonresponse Study Methodology

This appendix includes additional information about the NHES:2019 qualitative nonresponse study methodology that readers should be aware of when interpreting the results. For more information on the NHES:2019 data collection activities and sampling methods, see the *National Household Education Surveys Program of 2019: Data File User's Manual* (Jackson et al. 2021).

B.1 Sampling

B.1.1 Site Selection

To maximize efficiency, data collection for the qualitative nonresponse study was restricted to seven 30-mile radius sites across the United States. Several goals guided the selection of these sites: (1) maximizing the number of available nonresponding addresses, (2) having regional diversity in the selected sites, and (3) ensuring sufficient representation of specific types of addresses. For example, the site selection aimed to maximize representation of likely Hispanic addresses, which have traditionally had lower NHES response rates. In addition, it was important to be able to sample addresses located in a variety of locale types (i.e., urban, suburban, rural), since households in different types of locales likely face different types of mail delivery challenges.

Qualitative interview sites

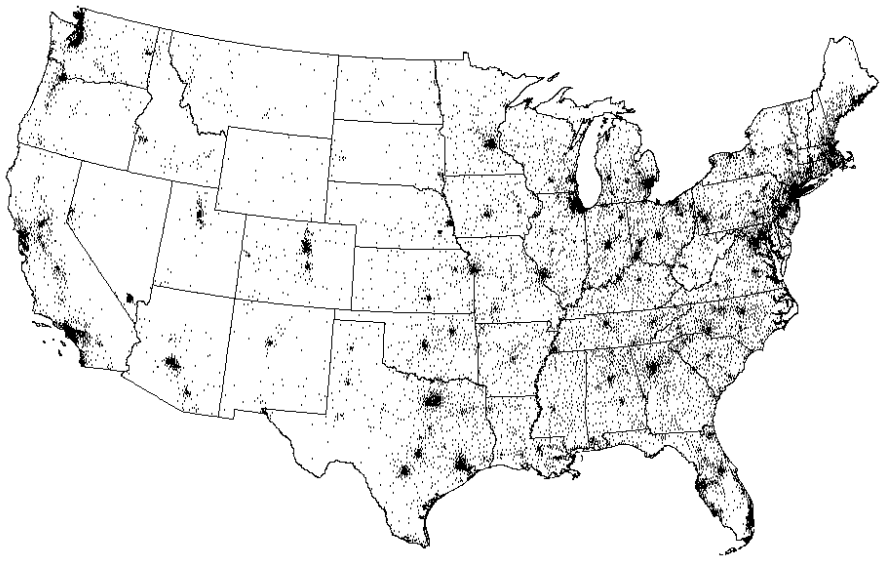
Address observations were conducted in all seven sites, and qualitative interviews were conducted in four of the sites. To select the qualitative interview sites, NHES:2016 response data was used because the NHES:2019 collection had not begun at the time this decision needed to be made. The ABS sampling methods used for NHES:2019 were nearly identical to those used for NHES:2016, and the mailing protocol for the 2016 web-push condition was very similar to the NHES:2019 web-push protocol. Therefore, it was believed that the NHES:2016 response data could be used as a proxy.

To facilitate site selection, the NHES:2016 mixed mode sample was subset to the addresses that had not yet responded prior to the fourth screener package and were not P.O. boxes, drop points, or rural routes. These addresses were mapped onto a GIS shapefile of U.S. cities and towns. Exhibit B.1 below plots the location of these NHES:2016 screener nonrespondents. A starting set of potential cities and towns that could serve as the center points of the study sites was identified by applying a series of eligibility rules; any city or town that did not have at least 50 eligible NHES:2016 nonresponding addresses within a 30-mile radius were excluded from consideration,[1] as was any city or town that did not meet a region-specific target for the number of nonresponse-study-eligible nonrespondent addresses for each high-priority subgroup (Hispanic addresses, addresses with children, and addresses whose head of household has less than a high school degree). The three cities that had already been designated as "observation-only" sites (described below) were excluded as

[1] A threshold of 50 was used because these are the areas expected to have at least 100 nonresponse-study-eligible nonrespondents in NHES:2019 based on the proportion of sampled NHES:2016 mixed-mode cases relative to the number of addresses sampled for the NHES:2019 baseline web-push protocol.

possible interview sites. Cities and towns whose 30-mile radius overlapped with the observation-only sites also were excluded to make the sample as regionally diverse as possible.

Exhibit B.1. Location of NHES:2016 screener nonrespondents



SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2016.

Using the remaining cities and towns after these exclusions were applied, a *k*-means clustering algorithm was used to divide the remaining cities and towns into four clusters. The following variables were used in the clustering algorithm:[2]

- Percent with Hispanic head of household
- Percent with Black head of household
- Percent with household income under $25,000
- Percent in which the head of household does not have a high school diploma
- Percent in which the head of household is under 35
- Percent urban

From each of the four clusters, the city that was closest to the cluster centroid was selected. Because the *k*-means algorithm includes some randomization, the procedure was run five times, each using a different random seed; this led to five possible sets of four sites each. Each set of sites was examined to identify the set with the greatest diversity in terms of the

[2] *K*-means aims to minimize within-cluster variation while maximizing between-cluster variation with respect to specified variables of interest.

size of the selected metro area and the demographic characteristics of the sites, particularly racial composition, socioeconomic status, and urbanicity.

Of the five sets of sites produced by the algorithm, the fourth set was selected because it seemed the most geographically diverse, included one city from each Census Region, and met the criteria outlined above. More specifically, the center points of the sites were in Connecticut, Ohio, Texas, and California. Because the sites each had a 30-mile radius, some of them included addresses in more than one state.

Observation sites

Observations were conducted in seven sites. In addition to the four sites described above, three observation-only sites were selected. These sites were selected because of their proximity to AIR offices, which increased the efficiency of the address observation fieldwork efforts. They also complemented the characteristics of the other four sites. The center points of these sites were in Texas, Illinois, and Washington, DC. Again, because the sites each had a 30-mile radius, some of them included addresses in more than one state.

B.1.2 Address Selection

The address sample design was driven by three priorities of (1) sampling 100 addresses per qualitative site and 120 addresses per observation-only site; (2) achieving sufficient qualitative interviews from Hispanic households, households with children, and low-education households to allow for separate analyses of these key subgroups; and (3) ensuring that the sample was reasonably representative of all nonresponse-study-eligible nonrespondent addresses located at the seven selected sites.[3]

Address selection at qualitative interview sites

At the four qualitative sites, addresses needed to meet the following criteria to be eligible for sampling for the qualitative study:

- Lie within a 30-mile radius of the site's center, as defined by latitude and longitude
- Be present on the data collection operations mailout label file for the final NHES:2019 screener nonresponse follow-up mailing and not be on the pull file for this mailing[4]
- Be part of the updated web-push mailing protocol treatment group, excluding the opt-out screener materials treatment group[5]

[3] These priorities were competing because it was necessary to oversample the smaller sites to achieve a uniform sample size per site, and to oversample the key subgroups for the qualitative study to achieve enough interviews for analysis; but the more variance there was in sampling rates across subgroups and sites, the less the sample would resemble the eligible population.
[4] The label file is created approximately two weeks before mailout and contains addresses that are set to receive the specified mailing wave. The pull file is created a few days before mailout and contains addresses that responded in the interim and thus are to be "pulled" from the mailing.
[5] The NHES:2019 included multiple methodological experiments that impacted exactly what materials respondents received with each mailing. Detailed descriptions of the experimental treatments can be found in Medway et al. (forthcoming).

- Not be a drop point address, P.O. box, or rural route address
- Have a status code on the data collection operations mailout label file for the final NHES:2019 screener nonresponse follow-up mailing indicating that the case was not a hard refusal or an ineligible address

A total of 400 addresses were selected, 100 from each site. Within each site, eligible addresses were divided into eight strata, defined by crossing the sampling frame indicators for Hispanic status, whether the household has children, and whether the head of household has a high school diploma.

The sample size for each stratum was chosen using a constrained optimization routine that minimized the variation in sampling rates across strata and sites while requiring at least 120 addresses to be sampled from each key subgroup (Hispanics, households with children, and low-education households) across the four sites. Sampling 120 addresses from each subgroup increased the likelihood of achieving enough interviews with that group, allowing some safety margin for inaccuracies in the sampling frame flags and for differential nonresponse to the qualitative interviews. Since weights were not constructed for the qualitative nonresponse study, the oversample required to meet these targets implied that the qualitative sample would not be purely "representative" of the eligible addresses. The requirement to sample exactly 100 addresses from each site implied a further departure from representativeness, since the number of eligible addresses varied across sites. However, by minimizing the variation in sampling rates, the constrained optimization routine helped to meet these targets with the lowest possible sampling bias.

Within each stratum, a systematic random sample was selected after sorting on an indicator for multi-unit dwellings and then on the nine-digit ZIP code. Sorting achieves implicit stratification, helping to ensure that multi-unit addresses made up a similar proportion of the sample as of all eligible addresses, and that the geographic distribution of the sample mirrored that of eligible addresses.

Address selection at observation-only sites

At the three observation-only sites, the eligibility criteria were the same as for the qualitative sites, with one exception. Addresses with a UAA status code on the data collection operations mailout label file for the final NHES:2019 screener nonresponse follow-up mailing were eligible for the observation-only study if at least one of the first three mailings was not returned as undeliverable. The inclusion of these "inconsistent UAAs" allowed the observations to gather insight into the characteristics of addresses with such outcomes.

Within each site, eligible addresses were divided into two strata: inconsistent UAAs and non-UAAs. A total of 120 addresses—100 non-UAAs and 20 partial UAAs—were selected from each site. A systematic random sample was drawn from each stratum, after sorting on a Hispanic indicator, a presence of children indicator, a low-education indicator, a multi-unit dwelling indicator, and the nine-digit ZIP code. Thus, although the key subgroups were not

oversampled from the observation-only sites, implicit stratification helped ensure that each group's prevalence in the sample was similar to its prevalence among eligible addresses.

B.1.3 Sample Representativeness

The sample for this study was not designed to be nationally representative of NHES nonrespondents. The study was meant to provide theory building information and should not be interpreted as providing nationally representative official estimates. As noted above, the seven study sites were chosen non-randomly, and (due to the requirement to have at least 100 nonrespondents within a 30-mile radius) were in predominantly urban or suburban areas. Some sample bias is expected due to the oversampling of certain subgroups and differential sampling rates across sites (i.e., smaller sites required higher sampling rates to achieve a uniform sample size across sites).

To provide readers with additional context about how well the sampled addresses represented the larger set of nonrespondents to NHES:2019, we compared the addresses sampled for the qualitative nonresponse study to those of NHES:2019 nonrespondents in terms of address-level and area-level variables on the NHES:2019 sampling frame and NHES:2019 paradata. For each characteristic, the absolute bias was calculated as the absolute value of the difference between sampled addresses and all nonrespondent addresses.

Two analyses were conducted that focused on nonrespondent addresses: the first examined the characteristics of the 700 non-UAA addresses sampled for the observation component of study, while the second focused just on the 400 addresses sampled for the qualitative interview component of the study (see tables B.1 and B.2). Both of these analyses suggest the nonrespondent study sample was reasonably representative of NHES:2019 nonrespondents. In general, the characteristics showing the largest bias either were explicitly oversampled (e.g., households with children and low-education households) or are correlated with oversampled characteristics (e.g., low-income households and renters). In addition, as to be expected, there was some bias for characteristics that were influenced by the clustered design and the selection of somewhat more densely populated sites (e.g., locale, region, route type, dwelling type). The addresses sampled for the qualitative nonresponse study were generally less likely to be missing information on the sampling frame.

Finally, a third analysis compared the characteristics of the inconsistent UAA addresses sampled for the qualitative nonresponse study and the larger set of addresses with inconsistent UAA outcomes for the NHES:2019 screener mailings (see table B.3). The patterns discussed above for nonrespondent addresses generally held for these addresses as well. In addition, among the inconsistent UAA addresses, the estimated bias was generally larger.

Table B.1. Number and percentage distribution of household-level auxiliary data for nonrespondent addresses and inconsistent UAA addresses, by qualitative nonresponse study sampling status: 2019

	Nonrespondent addresses[1]								Inconsistent undeliverable as addressed (UAA) addresses[2]				
	All nonrespondent addresses		Addresses sampled for observation component			Addresses sampled for interview component			All inconsistent UAA addresses		Addresses sampled for observation component		
Household-level auxiliary data[3]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[4]	Number of addresses	Percentage of addresses	Absolute bias[5]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[6]
Total	**78,330**	**100.0**	**700**	**100.0**	†	**400**	**100.0**	†	**17,930**	**100.0**	**60**	**100.0**	†
Age of head of household													
18–34	7,980	10.2	60	8.9	1.3	40	9.5	0.7	1,400	7.8	5	5.0	2.8
35–44	10,690	13.7	100	14.3	0.6	60	15.8	2.1	1,440	8.0	5	5.0	3.0
45–54	11,340	14.5	110	15.9	1.4	60	14.8	0.3	1,330	7.4	10	15.0	7.6
55–64	9,730	12.4	90	13.1	0.7	60	15.3	2.8	1,250	7.0	#	#	†
65 and older	9,560	12.2	90	12.6	0.4	50	13.5	1.3	2,280	12.7	15	21.7	8.9
Missing	29,030	37.1	250	35.3	1.8	130	31.3	5.8	10,220	57.0	30	50.0	7.0
Gender of head of household													
Male	23,920	30.5	220	31.1	0.6	130	32.3	1.7	3,860	21.5	20	30.0	8.5
Female	22,210	28.4	200	28.7	0.4	130	31.3	2.9	3,940	22.0	20	30.0	8.0
Missing	32,200	41.1	280	40.1	1.0	150	36.5	4.6	10,140	56.5	25	40.0	16.5
Education of head of household													
Less than high school credential	10,640	13.6	150	21.6	8.0	120	30.0	16.4	1,740	9.7	5	10.0	0.3
High school credential	16,290	20.8	110	15.7	5.1	70	17.8	3.1	2,670	14.9	15	23.3	8.4
Some college	16,550	21.1	140	19.9	1.3	70	17.8	3.4	2,580	14.4	15	21.7	7.3
Bachelor's degree	8,590	11.0	90	13.3	2.3	50	12.5	1.5	1,210	6.8	5	8.3	1.6
Graduate degree	5,100	6.5	50	7.4	0.9	20	5.5	1.0	800	4.5	5	5.0	0.5
Missing	21,160	27.0	160	22.1	4.9	70	16.5	10.5	8,930	49.8	20	31.7	18.1
Race/ethnicity of head of household													
White, non-Hispanic	30,040	38.4	230	33.0	5.4	150	36.3	2.1	4,990	27.8	20	33.3	5.5
Black, non-Hispanic	10,590	13.5	110	16.0	2.5	60	13.8	0.2	2,170	12.1	10	18.3	6.2
Hispanic	12,030	15.4	160	22.4	7.1	110	26.3	10.9	1,270	7.1	5	11.7	4.6
Other race, non-Hispanic	3,030	3.9	40	5.6	1.7	30	6.3	2.4	330	1.9	#	#	†
Missing	22,630	28.9	160	23.0	5.9	70	17.5	11.4	9,170	51.1	20	33.3	17.8

See notes at end of table.

Table B.1. Number and percentage distribution of household-level auxiliary data for nonrespondent addresses and inconsistent UAA addresses, by qualitative nonresponse study sampling status: 2019—Continued

	Nonrespondent addresses[1]								Inconsistent undeliverable as addressed (UAA) addresses[2]				
	All nonrespondent addresses		Addresses sampled for observation component			Addresses sampled for interview component			All inconsistent UAA addresses		Addresses sampled for observation component		
Household-level auxiliary data[3]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[4]	Number of addresses	Percentage of addresses	Absolute bias[5]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[6]
Household income													
Less than $50,000	31,460	40.2	280	40.3	0.1	190	48.0	7.8	6,520	36.4	20	33.3	3.0
$50,000–$74,990	10,150	13.0	80	11.7	1.2	50	11.5	1.5	1,540	8.6	5	10.0	1.4
$75,000–$99,999	7,930	10.1	80	11.6	1.5	40	10.5	0.4	1,000	5.6	5	11.7	6.1
$100,000 or higher	14,280	18.2	170	23.6	5.3	90	21.3	3.0	1,850	10.3	10	20.0	9.7
Missing	14,520	18.5	90	12.9	5.7	40	8.8	9.8	7,030	39.2	15	25.0	14.2
Household flagged as having children													
Yes	15,030	19.2	180	25.1	6.0	120	30.0	10.8	1,870	10.4	5	6.7	3.8
No	63,300	80.8	520	74.9	6.0	280	70.0	10.8	16,060	89.6	55	93.3	3.8
Number of adults in household													
1 adult	41,500	53.0	390	55.4	2.5	230	58.3	5.3	8,530	47.6	35	60.0	12.4
2 adults	16,480	21.0	160	23.4	2.4	100	24.8	3.7	1,900	10.6	10	16.7	6.1
3 or more adults	5,920	7.6	60	8.3	0.7	30	8.3	0.7	490	2.7	#	#	†
Missing	14,430	18.4	90	12.9	5.6	40	8.8	9.7	7,010	39.1	15	23.3	15.8
Phone number available													
Yes	47,540	60.7	440	63.1	2.5	270	68.3	7.6	8,140	45.4	25	41.7	3.8
No	30,800	39.3	260	36.9	2.5	130	31.8	7.6	9,780	54.6	35	58.3	3.8
Route type[7]													
Street	55,560	70.9	440	62.3	8.6	270	68.5	2.4	10,860	60.6	30	50.0	10.6
High rise	22,160	28.3	260	37.7	9.4	130	31.5	3.2	6,820	38.0	30	50.0	12.0
P.O. Box	570	0.7	†	†	†	†	†	†	230	1.3	†	†	†
Rural	40	0.1	†	†	†	†	†	†	20	0.1	†	†	†

See notes at end of table.

Table B.1. Number and percentage distribution of household-level auxiliary data for nonrespondent addresses and inconsistent UAA addresses, by qualitative nonresponse study sampling status: 2019—Continued

	Nonrespondent addresses[1]								Inconsistent undeliverable as addressed (UAA) addresses[2]				
	All nonrespondent addresses		Addresses sampled for observation component			Addresses sampled for interview component			All inconsistent UAA addresses		Addresses sampled for observation component		
Household-level auxiliary data[3]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[4]	Number of addresses	Percentage of addresses	Absolute bias[5]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[6]
Dwelling type													
Single-unit	53,160	67.9	410	58.3	9.6	260	64.8	3.1	10,290	57.4	25	40.0	17.4
Multi-unit	24,600	31.4	290	41.7	10.3	140	35.3	3.8	7,410	41.3	35	60.0	18.7
Missing	570	0.7	#	#	†	#	#	†	230	1.3	#	#	†
Home tenure													
Own	41,150	52.5	360	51.0	1.5	200	50.0	2.5	6,040	33.7	25	38.3	4.6
Rent	21,130	27.0	220	32.0	5.0	150	37.3	10.3	4,840	27.0	15	25.0	2.0
Missing	16,050	20.5	120	17.0	3.5	50	12.8	7.8	7,050	39.3	20	36.7	2.6

†Not applicable.
#Rounds to zero.
[1]Nonrespondent addresses were those that met both of these criteria: (1) Their final NHES:2019 final screener was nonrespondent. (2) They did not have any UAA outcomes for the screener mailings.
[2]Inconsistent UAA addresses were those that had a UAA for some, but not all, of the NHES:2019 screener mailings.
[3]The household-level auxiliary data are based on variables available on the NHES: 2019 sampling frame.
[4]Absolute bias is the absolute value of the difference between all nonrespondent addresses and addresses sampled for the observation component.
[5]Absolute bias is the absolute value of the difference between all nonrespondent addresses and addresses sampled for the interview component.
[6]Absolute bias is the absolute value of the difference between all inconsistent UAA addresses and UAA addresses sampled for the observation component.
[7]P.O. Box and rural route addresses were not eligible to be sampled for the qualitative nonresponse study.
NOTE: Sample sizes are rounded to the nearest 10, except for inconsistent UAA addresses sampled for the observation component (rounded to the nearest 5 due to small sample sizes). Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table B.2. Number and percentage distribution of area-level auxiliary data for nonrespondent addresses and inconsistent UAA addresses, by qualitative nonresponse study sampling status: 2019

	Nonrespondent addresses[1]								Inconsistent undeliverable as addressed (UAA) addresses[2]				
	All nonrespondent addresses		Addresses sampled for observation component			Addresses sampled for interview component			All inconsistent UAA addresses		Addresses sampled for observation component		
Area-level auxiliary data	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[3]	Number of addresses	Percentage of addresses	Absolute bias[4]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[5]
Total	**78,330**	**100.0**	**700**	**100.0**	†	**400**	**100.0**	†	**17,930**	**100.0**	**60**	**100.0**	†
Urbanicity[6]													
Urban	31,590	40.3	310	44.7	4.4	165	41.3	0.9	7,690	42.9	25	43.3	0.4
Suburban	28,530	36.4	350	49.7	13.3	216	54.0	17.6	5,290	29.5	30	48.3	18.8
Town	6,780	8.7	10	1.0	7.7	#	#	†	2,360	13.2	‡	‡	†
Rural	11,430	14.6	30	4.6	10.0	16	4.0	10.6	2,590	14.4	5	6.7	7.8
Region[6]													
Northeast	13,200	16.9	100	14.3	2.6	100	25.0	8.1	2,580	14.4	#	#	†
South	33,720	43.0	300	42.9	0.2	100	25.0	18.0	8,130	45.4	40	66.7	21.3
Midwest	13,890	17.7	200	28.6	10.8	100	25.0	7.3	4,120	23.0	20	33.3	10.4
West	17,530	22.4	100	14.3	8.1	100	25.0	2.6	3,100	17.3	#	#	†
Race/ethnicity stratum[7]													
25% or more Black	18,890	24.1	170	24.7	0.6	70	18.3	5.9	5,160	28.8	20	36.7	7.9
40% or more Hispanic	15,450	19.7	190	27.6	7.8	130	31.8	12.0	2,640	14.7	15	21.7	6.9
Other	43,990	56.2	330	47.7	8.4	200	50.0	6.2	10,120	56.5	25	41.7	14.8
Tract poverty rate[7]													
Less than 20%	49,530	63.2	470	67.4	4.2	250	62.0	1.2	10,000	55.8	35	61.7	5.9
20% or more	28,800	36.8	230	32.6	4.2	150	38.0	1.2	7,930	44.2	25	38.3	5.9
Percent of households in Census block that include a child[7]													
First quartile	17,870	22.8	190	26.4	3.6	90	23.3	0.4	5,720	31.9	20	30.0	1.9
Second quartile	18,510	23.6	140	19.4	4.2	90	21.8	1.9	4,420	24.7	15	21.7	3.0
Third quartile	19,500	24.9	180	25.6	0.7	100	24.8	0.2	3,990	22.3	15	23.3	1.0
Fourth quartile	22,410	28.6	200	28.6	0.1	120	30.3	1.6	3,770	21.1	15	25.0	3.9

See notes at end of table.

Table B.2. Number and percentage distribution of area-level auxiliary data for nonrespondent addresses and inconsistent UAA addresses, by qualitative nonresponse study sampling status: 2019—Continued

	Nonrespondent addresses[1]								Inconsistent undeliverable as addressed (UAA) addresses[2]				
	All nonrespondent addresses		Addresses sampled for observation component			Addresses sampled for interview component			All inconsistent UAA addresses		Addresses sampled for observation component		
Area-level auxiliary data	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[3]	Number of addresses	Percentage of addresses	Absolute bias[4]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[5]
Percent of persons in Census block that speak a language other than English[7]													
First quartile	17,220	22.0	60	9.1	12.9	40	10.3	11.7	5,050	28.2	5	11.7	16.5
Second quartile	17,150	21.9	120	17.1	4.8	80	19.5	2.4	4,420	24.7	10	15.0	9.7
Third quartile	19,420	24.8	220	31.7	6.9	110	26.8	2.0	4,290	23.9	15	28.3	4.4
Fourth quartile	24,520	31.3	290	42.0	10.7	170	43.5	12.2	4,160	23.2	25	45.0	21.8
Percent of persons in Census block without a high school diploma or the equivalent[7]													
First quartile	16,040	20.5	180	25.6	5.1	80	20.5	0.0	3,580	20.0	10	16.7	3.3
Second quartile	17,460	22.3	130	19.1	3.2	80	19.5	2.8	3,940	22.0	15	26.7	4.7
Third quartile	20,160	25.8	150	21.6	4.2	80	20.3	5.5	4,910	27.4	15	26.7	0.7
Fourth quartile	24,630	31.5	240	33.7	2.3	160	39.8	8.3	5,500	30.7	20	30.0	0.7
Low Response Score[8]													
First quartile	14,390	18.5	140	19.9	1.4	90	21.6	3.1	2,930	16.6	10	13.3	3.2
Second quartile	17,490	22.5	120	17.0	5.4	70	17.5	4.9	3,630	20.5	5	11.7	8.8
Third quartile	20,850	26.8	160	22.3	4.4	80	19.6	7.2	4,540	25.6	15	21.7	3.9
Fourth quartile	25,180	32.3	290	40.8	8.5	170	41.4	9.0	6,620	37.4	30	53.3	16.0
Residential high-speed internet per 1000 households[9]													
600 or less	24,270	31.0	160	22.4	8.6	120	29.0	2.0	7,180	40.0	15	28.3	11.7
601-800	28,360	36.2	250	36.0	0.2	150	37.5	1.3	5,860	32.7	15	21.7	11.0
801 or more	25,700	32.8	290	41.6	0.2	130	33.5	0.7	4,900	27.3	30	50.0	22.7

†Not applicable.
#Rounds to zero.
‡Reporting standards not met. There are too few cases for a reliable estimate.
[1]Nonrespondent addresses were those that met both of these criteria: (1) Their final NHES:2019 final screener was nonrespondent. (2) They did not have any UAA outcomes for the screener mailings.
[2]Inconsistent UAA addresses were those that had a UAA for some, but not all, of the NHES:2019 screener mailings.
[3]Absolute bias is the absolute value of the difference between all nonrespondent addresses and addresses sampled for the observation component.
[4]Absolute bias is the absolute value of the difference between all nonrespondent addresses and addresses sampled for the interview component.
[5]Absolute bias is the absolute value of the difference between all inconsistent UAA addresses and UAA addresses sampled for the observation component.
[6]These characteristics are based on variables available on the NHES: 2019 sampling frame.
[7]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.

[8]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[9]This characteristic is based on tract-level estimates of internet penetration provided by the Federal Communications Commission (FCC).
NOTE: Sample sizes are rounded to the nearest 10, except for inconsistent UAA addresses sampled for the observation component (rounded to the nearest 5 due to small sample sizes). Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table B.3. Number and percentage distribution of data collection paradata for nonrespondent addresses and inconsistent UAA addresses, by qualitative nonresponse study sampling status: 2019

	Nonrespondent addresses[1]								Inconsistent undeliverable as addressed (UAA) addresses[2]				
	All nonrespondent addresses		Addresses sampled for observation component			Addresses sampled for interview component			All inconsistent UAA addresses		Addresses sampled for observation component		
Data collection paradata	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[3]	Number of addresses	Percentage of addresses	Absolute bias[4]	Number of addresses	Percentage of addresses	Number of addresses	Percentage of addresses	Absolute bias[5]
Total	**78,330**	**100**	**700**	**100.0**	†	**400**	**100.0**	†	**17,930**	**100.0**	**60**	**100.0**	†
Nonresponse study site[6]													
Texas interview site	530	5.9	100	14.3	8.4	100	25.0	19.1	130	7.8	†	†	†
Connecticut	1,910	21.2	100	14.3	6.9	100	25.0	3.8	500	31.1	†	†	†
California	1,130	12.5	100	14.3	1.7	100	25.0	12.5	220	13.5	†	†	†
Ohio	490	5.4	100	14.3	8.9	100	25.0	19.6	90	5.4	†	†	†
Texas observation site	3,060	34.0	100	14.3	19.7	†	†	†	300	18.4	20	33.3	14.9
Illinois	540	6.0	100	14.3	8.3	†	†	†	160	9.7	20	33.3	23.6
Washington, DC	1,350	15.0	100	14.3	0.7	†	†	†	230	14.0	20	33.3	19.4
NHES:2019 final screener response status													
Responded	#	#	80	12.0	†	50	12.0	†	1,980	11.0	5	5.0	6.0
Did not respond	78,330	100.0	620	88.0	12.0	350	88.0	12.0	15,950	89.0	55	95.0	6.0
NHES:2019 undeliverable as addressed (UAA) mailings status													
One or more UAA mailings	#	#	30	3.9	†	20	4.3	†	17,930	100.0	60	100.0	0.0
No UAA mailings	78,330	100.0	670	96.1	†	380	95.7	4.3	#	#	#	#	†
NHES:2019 screener mailings language													
All bilingual mailings (English and Spanish)	30,080	38.4	280	39.9	1.5	130	32.3	6.1	7,170	40.0	20	36.7	3.3
Mix of bilingual mailings and English-only mailings	30,950	39.5	340	48.0	8.5	210	52.8	13.3	5,690	31.8	30	50.0	18.3
All English-only mailings	17,310	22.1	90	12.1	10.0	60	15.0	7.1	5,060	28.2	10	13.3	14.9

†Not applicable.
#Rounds to zero.
[1]Nonrespondent addresses were those that met both of these criteria: (1) Their final NHES:2019 final screener was nonrespondent. (2) They did not have any UAA outcomes for the screener mailings.
[2]Inconsistent UAA addresses were those that had a UAA for some, but not all, of the NHES:2019 screener mailings.
[3]Absolute bias is the absolute value of the difference between all nonrespondent addresses and addresses sampled for the observation component.
[4]Absolute bias is the absolute value of the difference between all nonrespondent addresses and addresses sampled for the interview component.
[5]Absolute bias is the absolute value of the difference between all inconsistent UAA addresses and UAA addresses sampled for the observation component.
[6]The percentage of nonrespondent and inconsistent UAA addresses in the seven sites were only 12 and 9 percent of the total. Frequencies and percentages presented for this category add up to the sub-total included in the qualitative nonresponse study.
NOTE: Sample sizes are rounded to the nearest 10, except for inconsistent UAA addresses sampled for the observation component (rounded to the nearest 5 due to small sample sizes). Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

B.2 Qualitative Interview Methodology

The purpose of the qualitative interviews was to gain a deeper understanding about how the participants inhabit their world and how that orientation may influence their thoughts on research and survey participation.

B.2.1 Interview Recruitment

As noted above, 400 addresses were sampled for the interview component of the study. As shown in exhibit B.2, several recruitment contact attempts were made. The interview recruitment materials can be found in appendix G.

Recruitment began with an invitation letter that was mailed to all sampled addresses on April 19, 2019. The letter provided an overview of the study. It also asked the household members to contact the study team to schedule an in-person interview using the toll-free phone number or email address provided in the letter. The mailing included a $5 cash incentive, and the letter noted that the sample members would receive a $120 cash incentive for completing an interview.

Exhibit B.2. Interview recruitment contact attempts

Contact attempt	Date
Invitation letter	April 19, 2019
Reminder postcard 1	April 26, 2019
Wave 1 reminder calls to addresses that had a phone number on the sampling frame	April 26 – May 2, 2019
Week 1 in-person recruitment	May 2 – May 9, 2019
Reminder postcard 2	May 7, 2019
Week 2 in-person recruitment	May 15 – May 22, 2019
Wave 2 reminder calls to addresses that had a phone number on the sampling frame	May 22 – May 29, 2019
Week 3 in-person recruitment	May 29 – June 5, 2019

In general, nonresponse follow-up continued until (1) the household scheduled an interview, (2) the household provided a refusal to participate (a single hard refusal or two soft refusals), or (3) field staff determined the address did not exist or was vacant.

Mailed reminders. Two reminder postcards were mailed to sample members. Both provided an overview of the study, included contact information for setting up an interview, noted the $120 promised incentive, and mentioned that the study team would be in the neighborhood in the coming weeks.

Phone reminders. Two waves of reminder calls were made to addresses that had a phone number on the frame (about 270 addresses). During each of the two waves, staff aimed to call each address up to two times. Some addresses were called less often (e.g., if the

household had already scheduled an interview before the second wave of calls or if initial calls indicated the available phone number was not associated with the sampled address) or more often (e.g., if the household requested a callback at a later time). To maximize the likelihood of reaching someone at home, calls were made on several days and at varied times throughout the day. During these calls, staff introduced the study, mentioned the promised incentive, and invited sample members to participate. Those who were interested were screened for eligibility and, if eligible, an interview was scheduled. For cases where the calls went unanswered, one voicemail was left per wave of calling. The voicemail introduced the study and encouraged sample members to contact the study team to schedule an interview.

In-person visits: Three weeks of in-person recruitment were conducted. Two field staff teams (each comprised of a senior interviewer and a supporting field staff member) were assigned to visit half of the addresses in each site. Throughout the course of the study, 10 senior interviewers and 11 field staff conducted recruitment efforts. Recruitment was conducted throughout the week, between 9:00 AM and 7:00 PM local time, but was primarily concentrated in the evenings and weekends. Teams attempted to visit each address at least once per week; depending on the outcomes of prior contact attempts, some addresses were visited more or less often than this.

When no one answered the door, the team left a *Sorry We Missed You* card that encouraged the address to contact the study team to schedule an interview. When someone answered the door, the team introduced the study, mentioned the promised incentive, and invited the person who had answered the door to participate. The team addressed any questions or concerns raised by the household member, and a *Commonly Asked Questions* document was available for individuals who wanted more detailed information about the study. When interviews were scheduled for a later date, the team left an *Appointment Reminder* card and then contacted the interview participant shortly before the interview to confirm that the person was still available to participate.

Case management and quality control. The outcomes of all call attempts and in-person visits were recorded by field staff in a case management system (see appendix E for more information about these outcomes). These outcomes were reviewed daily by site managers, who then provided feedback and guidance about next steps for recruitment. Site managers also conducted an oversight trip to each site to observe recruitment efforts and provide feedback to the teams. In addition, the qualitative team lead also held daily check-in meetings with the teams to discuss recruitment and interviewing outcomes.

Recruitment language. Recruitment was conducted in both English and Spanish. Likely-Spanish-speaking households were sent recruitment bilingual materials that included both English and Spanish, were called by bilingual staff members, and received in-person visits from bilingual field staff. When Spanish language barriers were encountered in the field (e.g., an English-only staff member called or visited a Spanish-speaking household), the case received a return call or return visit by a Spanish-speaking staff member whenever possible.

Eligibility criteria. Individuals who were interested in completing an interview were screened for eligibility. To be eligible to participate in the interview, individuals had to: (1)

be age 18 or older, (2) live or stay at the sampled address most of the time between January and April 2019 (the time period during which NHES:2019 screener phase mailings were sent), and (3) and have some responsibility for handling the household's mail. Within-household sampling was not conducted.

B.2.2 Interview Protocol

Eighty-five interviews were completed between May 3 and June 5, 2019. The interviews were conducted using semistructured, conversational methodology. This approach facilitated exploration into both hypothesized drivers of nonresponse and areas of importance to the participants that were not already captured by available variables, such as those on the sampling frame (e.g., estimated household income, route type) or that are collected as part of the survey (e.g., notification from the postal service that a mailing was unable to be delivered as addressed).

The interview team comprised a senior interviewer who led the conversation and a field staff who took notes. Interviews generally took place at the sampled address. Per participants' request, a few interviews took place at a quiet public place, such as the apartment building lobby or a coffee shop. Interviews were conducted in English and Spanish and lasted approximately 90 minutes. In most cases, a single household member completed the interview. However, in about five interviews, a second household member participated as well. All interviews began with the participant reading an informed consent form and the senior interviewer answering any questions that arose.

Interview domains. Interviewers were trained to cover all of the domains included in the interview protocol during the interview and to probe other topics when raised by the participant that may be germane to the overarching research questions. Interviewers were free to address the domains in whatever order felt comfortable, conversational, and natural. The protocol included example questions for each domain, but there were not any required questions (see appendix G for the interview protocol and other materials used during the interview). The domains included:

- Household make-up
- Experience with mail delivery
- Understanding of and attitudes toward surveys
- Privacy concerns
- Attitudes toward the government
- Education
- Time use
- Civic and community engagement

The interviews also contained two slightly more structured activities: (1) the example mail activity and (2) the NHES:2019 screener materials review activity.

Example mail activity. In the first activity, the interviewer handed the participant an example mail bundle that contained 12 mailings typically found in a routine mail delivery (see appendix G for the example mailings). One of the mailings was the NHES:2019 initial screener package. Mailing features (such as color, font, return and sender addresses, and postage type) were varied to assess whether—and how—they influenced the participant's interest in engaging with the mailings. All participants received the same mailing pieces, but the pieces were bundled together in different orders across participants. All mailings were addressed to a fictional address: 123 Main Street, AnyTown, ST 54321. They were also addressed to a fictional person: Jamie Smith (for some mailings, the recipient name was instead listed as the Smith household, member of AnyTown household, or current resident). Participants were asked to imagine that they were that person and lived at that address. Participants were then asked to sort the mail bundle according to their usual habits and explain how they would react to each mailing and why: Would they open it? Would they read it? Would they keep it? All mailings were sealed, and participants' reactions were limited to the exterior features of the mailings.

NHES:2019 screener materials review activity. In the second activity, the interviewer showed the participant five NHES:2019 screener mailings. Participants opened and reviewed the mailings. The interviewers asked if participants remembered receiving such a mailing, if so, and what they had done with it after receiving it. The interviewers also asked participants for feedback about the mailings and the paper screener (see appendix F for the NHES:2019 screener materials).

At the conclusion of the interview, the interviewer read aloud a demographics form that contained questions about the participant and the household. A show card was used for the household income question, which allowed participants to point to an income range on the card. Leading up to and during the interview, when possible, the team observed unobtrusively the household exterior and interior. At the end of the interview, the team then gave the participant the $120 cash incentive.

Notetaking and memos. Interviews were recorded with participants' permission, with the field staff's notes serving as a backup source of information. However, about 10 participants declined to be recorded; in these cases, the field staff's notes served as the record. After each interview, the interviewer wrote a memo summarizing the key discussion points and themes from both recruitment and the interview, any observations about the participant that would not be captured on the audio recording (e.g., body language, facial expressions), and a description of the interior and exterior of the home.

Training, monitoring, and quality control. All interviewers attended a two-day, in-person training that provided background on the NHES and the qualitative nonresponse study, covered recruitment and interviewing protocols, and included opportunities to practice recruitment and interview skills. All field staff completed a two-hour virtual training that provided background on the NHES and the qualitative nonresponse study and reviewed the

responsibilities relevant to this role (e.g., notetaking, navigation, utilizing the case management system); because most field staff were also observers, they also completed a five-hour virtual training as part of that role.

Interviewers were observed in the field by site managers, and recordings were monitored throughout the field period to ensure the interviews were being conducted accurately and respectfully and interviewers were obtaining the needed information.

Short interview. Once two soft refusals had been received from an address, the team asked if the household member would instead be willing to answer a short set of questions. After screening for eligibility, the short form questions asked whether the participant recalled receiving any mail from the Department of Commerce or the Census Bureau, whether the participant recalled receiving any mail about the National Household Education Survey, and, if so, the participant's reasons for not responding to the survey. Six short form interviews were completed.

B.3 Address Observation Methodology

The purpose of the address observations was to record the characteristics of nonrespondent and inconsistent-UAA addresses in a systematic manner to (1) help understand reasons for nonresponse not already captured by available variables and (2) evaluate the accuracy of sampling frame data.

B.3.1 Observation Fieldwork

As noted above, 760 addresses were sampled for the address observation component of the study. Most observations were conducted over a four-day period (April 29 through May 2, 2019) between the hours of 8:00 AM and 5:00 PM local time.[6] Seventeen staff members conducted observations; most observers working in qualitative interview sites also served as field staff for the interview component of the study. Each observer was assigned 40 to 50 addresses to observe, depending on the site at which they were working.

Observers drove to each of their assigned addresses. After arriving at an address, they drove or walked around the area to get a sense of the overall neighborhood but conducted the observation from the car as best as they could. They completed the observation from public property, and, whenever possible, facing the front of the address. For apartment buildings, they also attempted to gain access to the building via a manager or security guard in order to observe a mail room or area and the door or balcony of the sample unit. They completed the observation from public property, and, whenever possible, facing the front of the address.

When possible, observers began by discretely taking two or three photos of the exterior of each address, which were used in a fieldwork tracking effort. They next used a tablet to

[6] A small number of observations were conducted after May 2 or outside of the core observation hours. This was typically because of logistical issues (e.g., an address being far away from all of the other sampled addresses or challenges accessing the area where the address was located).

complete a web-based observation instrument, which had been programmed using the IES Survey Engine. In a small number of cases, internet was not available while completing the observation; these observations were recorded on paper forms and then entered into the web instrument as soon as the observer had an internet connection. When completing observations of addresses that were part of multi-unit buildings, observers were instructed to limit their observation only to those items that could clearly be attributed to the sampled unit (e.g., an infant swing on the unit's balcony would be considered evidence of the presence of children, but a playground on the grounds of the larger apartment complex would not). Most addresses were only visited once, but in a small number of cases, the observer had to return to the address a second time to complete the observation (e.g., due to a road being closed or blocked on the first visit). On average, each observation took about 7 to 10 minutes to complete.

Training. All observers completed a five-hour virtual training that provided background on the NHES and the qualitative nonresponse study, a detailed review of an observation codebook, and a summary of the responsibilities relevant to this role (e.g., navigation, completing observations, utilizing the case management system).

Case management and quality control. The outcome of each observation attempt was recorded in a case management system. For those addresses sampled for the interview component of the study, observers also recorded notes about the appearance of the address to facilitate returning to the address for interview recruitment. Observation outcomes were reviewed daily by site managers, who then provided feedback and guidance about next steps for ensuring all of the observations were completed during the field period. Oversight trips were conducted in a few of the sites to monitor observation efforts and provide feedback to the observers.

B.3.2 Observation Instrument

Observers were asked to use their best judgement when completing the observation instrument and to avoid any blind guesses or assumptions. To encourage this, "could not determine" and "other" response options were provided for many items, as well as a text box for providing more detailed information about what led them select their response to that item. Observers were instructed to be extremely thorough in their observation and include rich descriptive information in all write-in fields, especially when they selected a "could not determine" or "other" category.

The observation instrument began with a question asking if the sampled address was able to be observed. Observers noted that the address was either fully observed, partially observed, or not able to be observed. Partially observed addresses are those where the observer was able to observe the exterior of the multi-unit building but was not able to enter the building to observe the interior entry to the sampled unit. When an address was not able to be observed, the observer indicated why this was the case (e.g., could not locate, could not get close enough to confirm whether address exists). As shown in exhibit B.3, based on this preliminary observation outcome, observers then responded to up to 10 additional forced-choice items that captured two types of information about sampled addresses: physical

characteristics and household characteristics. The full observation instrument can be found in appendix H.

Exhibit B.3. Observation items

Item	Characteristic type	Addresses for which this item was captured
Observability	N/A	All addresses
Structure type	Physical	Full or partially observed addresses
Occupancy status	Physical	Fully or partially observed residential addresses
Mail access type	Physical	Fully or partially observed residential addresses that are not permanently vacant
Presence of children	Household	Fully observed, occupied residential addresses
Privacy or security concerns	Household	Fully observed, occupied residential addresses
Pride in education	Household	Fully observed, occupied residential addresses
Patriotism	Household	Fully observed, occupied residential addresses
Community involvement	Household	Fully observed, occupied residential addresses
Other household attributes	Household	Fully observed, occupied residential addresses
Household income	Household	All addresses that are not vacant lots or commercial addresses

Physical characteristics. The first few items captured information about the physical characteristics of the address, including structure type (single-unit, duplex, apartment, commercial, etc.) occupancy status (occupied, permanently vacant, etc.), and mail access type (mail slot, mailbox at the end of the driveway, etc.).

Household characteristics. The remaining items captured information about the characteristics of the household members. First, observers indicated whether there was evidence that there were children living in the household (e.g., children's bikes or toys)—or if there was evidence that it was unlikely that children lived there (e.g., address located in retirement home, AARP bumper sticker). Next observers answered a series of questions asking whether there was evidence of any of the following household characteristics: having pride in education, valuing community involvement, valuing patriotism, being concerned about privacy or security, and speaking a language other than English. There was also a place for observers to note evidence of any other household interests or values that they felt were important to record. Finally, observers indicated whether the household's income appeared to be in the bottom third, middle third, or top third of the U.S. population.

B.4 Data Processing

After the data collection was completed, several steps were taken to clean the interview and observation data and prepare them for analysis.

B.4.1 Interview Data Processing

Interview data processing proceeded in several steps. First, transcripts of the interview recordings were prepared. Next, these transcriptions were coded in NVivo.

Transcription. The interview recordings were sent to a qualified professional transcription firm. Once transcribed, the transcripts were returned to AIR via a secure server. AIR conducted a quality review of all transcripts to assess transcriber accuracy and relistened to portions of select audio files to correct, when possible, inaudible sections of the transcript. For interviews where the participant declined to be recorded, the notes taken by the field staff were used in place of an interview transcript. All Spanish-language interview transcriptions were translated to English for analysis. All PII was removed and replaced with bracketed text that allows the reader to still understand the text's meaning (e.g., [apartment number]). All transcripts (and notes when transcripts were not available) were subsequently uploaded to NVivo. This collection of transcripts and notes was the starting point for the qualitative analysis.

Coding. Once the interview transcripts were uploaded to NVivo, a series of codes were applied to segments of text in the transcripts. These codes captured participants' experiences, opinions about who they are, how they spend their time, and why the household did not respond to NHES:2019. They were selected in two stages. In the first stage, the lead analysts reviewed the interview protocol, which included interview domains and sample questions. Given that senior interviewers were instructed to cover all domains in every interview, the codebook started with a set of deductive codes that corresponded with each domain – such as privacy, surveys, and time use. In the second stage, the lead analysts reviewed the interviewer memos. Through reading these descriptions of discussions with participants, as well as the observations and reflections from senior interviewers and field staff, the team refined the deductive codes and added inductive codes, such as "Life is hard." The final codebook contained the 15 main codes shown in exhibit B.4.

Each main code contained 4 to 20 subcodes that captured more detailed or nuanced information about the broader topic (e.g., "daily routine" subcode within "Time Use"). When applicable, coders aimed to primarily use the more detailed subcodes; however, if the discussion did not fit under a specific subcode, yet addressed the concepts conveyed in the main code, the relevant main code was applied. Whenever a subcode was applied, the "parent" main code was automatically applied as well. The codebook also had "adjective codes," which were only used in conjunction with main codes and subcodes to add detail, depth and context about the discussion (e.g., "would not read" adjective code could be used with the "Initial screener mailing" subcode). The full codebook can be found in appendix G.

Exhibit B.4. Main codes included in qualitative interview codebook

Code	Description
Who's who	Any discussion that mentions the people the participant or household members interact with, now or in the past.
Time use	General discussion about how participants or household members spend their time daily.
Government and politics	General discussion about the business of operating the United States, states, or local municipalities, including the opinions of participants, household members, or other people important to the participants about political parties or domestic and international policies.
Education	General discussion about the opinions of and experiences with education concerning the participant, household, or people important to them as well as thoughts about education in general.
Surveys	General discussion about surveys and research, as well as opinions about and reactions to particular surveys (excluding the NHES, which had its own code).
Technology	General discussion about technology and how participants, household members, or people important to them use it.
Privacy	General discussion about the opinions and experiences with privacy by the participants, household members, or people important to them.
Community	General discussion about how the participant, household members or other people important to them interact with and perceive the environment outside the household.
Life is hard	General discussion about barriers and obstacles participants, household members, or people important to them face or have faced in life and their reactions to them.
Beliefs	General discussion about what participants, household members, or people important to them believe or value, as well as the underlying principles that influence how they prioritize their time.
Identity	General discussion about demographics that are salient to participants, household members, or people important to them. Discussion does not have to be about the participants' personal identity.
Mail delivery	General discussion about participants' and households' experience with receiving mail and sending mail.
Example mail	Discussion about the example mail activity including participants' reactions to all aspects of the mailings and reasons why they would or would not open it.
NHES	Any discussion related to the National Household Education Survey, the survey materials, or the qualitative nonresponse study.
Memos	Any information from the interviewer memo or field staff notes that provides information not otherwise captured in the transcript.

Prior to coding, a team of eight coders attended two trainings that provided an overview of the study's aims, the codes and their definitions, and inclusion and exclusion criteria for applying each code. Coders also participated in an interactive session where they learned how to apply the codes to text segments within the transcript using NVivo. During the training coders were taught to spot multiple topics within a single sentence or paragraph and to apply all the relevant codes accordingly.

The coders began by coding 10 percent of the transcripts, which were then reviewed by a lead analyst for accuracy and quality. Based on the initial round of coding, additional subcodes were added to capture ideas that emerged from the data that were not represented by the existing codes. Transcripts that had already been coded were revisited to add the newly created codes. The team then coded the remainder of the interviews, all of which were reviewed by a lead analyst for accuracy and quality.

The team conducted a similar process for creating attribute variables, which are discrete variables in NVivo that further describe the participant demographics or behavior. A list of deductive attributes was created using the demographic forms completed during the interview and appended to the appropriate transcript. Through the analysis process, the team created inductive attributes such as mail processing behavior, recall of NHES mailings,

and nonresponse typology category. Once created, these attributes were appended to the transcripts as well.

Analysis. Codes are an efficient way to organize massive amounts of textual data and help the team conduct analyses but cannot themselves answer research questions. Therefore, after all transcripts were coded, a team of five analysts analyzed the coded transcript data via multiple readings of the text. Most of the analysts had participated in earlier parts of the study (e.g., as interviewers), but any new team members received an onboarding training.

The analysts first read and summarized each code and subcode to synthesize what participants said about a given topic, as well as noting where responses seemed thematically similar or diverged. Once they outlined the overall findings for each code and subcode, they used the matrix coding feature in NVivo to compare the responses among participants with different demographic characteristics. This approach allowed the research team to elucidate how deductive groups (such as race or ethnicity) or inductive groups (such as mail sorting behavior) did or did not vary when looking at experiences, attitudes, and behaviors. A lead analyst regularly met with the team members, reviewed their work, and provided feedback.

B.4.2 Observation Data Processing

Several steps were taken to prepare the observation data for analysis, including removing duplicate entries, reviewing and coding write-in responses and removing PII.

Initial cleaning. Data processing began with a series of initial cleaning steps, such as reviewing study IDs (which had been hand-entered into the observation instrument) for accuracy and resolving any duplicated entries for individual cases (e.g., on rare occasions, the observer lost internet connectivity during the observation and had to complete the observation form in two parts).

The observation instrument included several items with skip patterns. However, due to limitations in the online instrument software (e.g., skips could only be programmed based on items on the previous webpage), it was not possible to program all the desired skip patterns for three of the items. These skips were corrected during data processing to ensure that all valid skips were accounted for and marked appropriately.

Review and coding of write-in responses. The observation instrument also contained eight text fields. These text fields were manually inspected to remove PII. They were also reviewed and coded in the ways described below.

- Some of the write-in items asked staff to explain a specific substantive answer to a forced-choice item (e.g., description of the evidence leading the observer to conclude the household members had privacy concerns or were involved in their community). The responses to these write-in items were reviewed to confirm that the correct response had been selected for the forced-choice item. Responses to the forced-choice items were recoded where necessary.

- Other write-in items asked staff to provide more information about why they had selected an "other" or "could not determine" response to a forced-choice item. These write-ins were reviewed to determine if any of the responses could be upcoded into existing categories. They were also reviewed to determine if any new categories should be created (e.g., an additional mail access type or structure type); however, ultimately, no new categories needed to be created.

- Finally, a few of the write-in items simply provided the opportunity for observers to enter additional rich description of the address that were not captured elsewhere: (1) the item that asked observers to provide a general description of the address and (2) the item that asked observers if there was evidence of any other household attributes of note. These responses were reviewed to determine if information provided for these items could be upcoded into existing items (e.g., if an observer noted evidence of patriotism in these items instead of in the patriotism item). The responses to these items were also reviewed by a senior team member and, based on themes identified in the responses, a set of new codes was developed and applied to the responses. These codes included: importance of religion, internet or television connectivity, welcoming decor, outdoor living, and other outdoor decor.

In addition to the approaches outlined above, a targeted word search was also conducted for several variables, particularly the newly created ones, to determine whether these characteristics were mentioned in write-ins other than the one originally associated with that characteristic.

A team of four coders reviewed the write-in responses, applied codes, and flagged forced-choice items in need of recoding. After completing a training session, each coder was assigned approximately 200 cases; about 10 percent of the cases were double coded. The coders started by reviewing and coding a subset of the write-in responses; these were reviewed by a senior team member for accuracy and feedback was provided to the coders. The coders then reviewed and coded to the remainder of the write-in responses. Two senior team members reviewed the codes for accuracy.

Appendix C. Observation Sensitivity Analyses

Before we began the observation analyses, we conducted two preliminary sensitivity analyses to determine whether certain types of addresses should be included in the observation results discussed throughout this report: (1) addresses that responded after the fourth NHES screener package ("late respondents"); and (2) addresses that had *only* the fourth NHES screener package returned as undeliverable (UAA). This appendix presents the results of those analyses.

C.1 Late NHES Respondents

To be eligible to be sampled for the qualitative nonresponse study, addresses had to have *not* responded to NHES:2019 as of the date the fourth screener package was sent (April 11, 2019). As a result, it remained possible that some of the addresses sampled as nonrespondents would end up responding after the fourth screener package. This ended up being the case for about 80 of the 700 addresses that were sampled as nonrespondents.

Key takeaway: Late respondents differed from final nonrespondents on several variables of interest. Many of these differences were consistent with prior literature in terms of characteristics that are associated with a higher likelihood of response to the NHES—and to surveys more generally (e.g., older, higher income). As a result, and due to the large number of notable differences, we determined that late respondent addresses should be excluded from the nonrespondent observation analyses conducted as part of this report.[7]

Methods: As shown in tables C.1 and C.2 at the end of this section, we compared the characteristics of the late respondents to those of the addresses that never responded in terms of both information available on the NHES sampling frame and the observations collected as part of the qualitative nonresponse study. The purpose of this analysis was to determine if late respondents were different enough from those that never responded to exclude them from the analyses of "nonrespondent addresses."

Results: We found that late respondents differed from nonrespondent addresses for several of the analyzed characteristics. For each of the characteristics listed below, we found a significant bivariate relationship between the overall characteristic and late respondent status. We then summarized patterns in terms of which characteristics were more common or less common among late respondents than among final nonrespondents. In general, late respondents were less likely to be missing information for household-level sampling frame variables; they also were more likely to be fully observed during the observation component of the qualitative nonresponse study. In addition, they more closely resembled the characteristics of groups that tend to be more likely to respond to the NHES—and to surveys more generally (e.g., older, higher household income). Additional detailed findings are included below.

- **Observation outcome:** Late respondents were more likely to be fully observed and less likely not to be located.

[7] Late respondents were, however, included in the interview analyses, and "late respondent" status was used as a subgroup variable when interpreting the interview findings.

- **Structure type:** Late respondents were more likely to be observed to be single-unit structures and less likely to be observed to be apartments. The same pattern was seen for the route type and dwelling type variables available on the NHES sampling frame.

- **Household income:** Late respondents were more likely to be observed to have household incomes in the top third of the population and less likely to be observed to have household incomes in the bottom third. The same pattern was seen for the household income variable available on the NHES sampling frame.

- **Observed household attributes:** Late respondents were more likely to be observed to have indicators of outdoor living and the importance of religion.

- **Bilingual mailing status:** Late respondents were more likely to have been sent English-only materials for all NHES:2019 mailings.

- **Age of head of household:** Late respondents were more likely to have a head of household who was age 65 or older and less likely to be missing this information on the frame.

- **Presence of children:** Late respondents were more likely to be flagged on the sampling frame as having children living in the household. This pattern was not repeated for the presence of children observation.

- **Number of adults:** Late respondents were more likely to have 2 adults in the household.

- **Phone number available:** Late respondents were more likely to have a phone number available on the sampling frame.

- **Home tenure:** Late respondents were more likely to own their residence and less likely to rent it.

There were also significant differences between late respondents and final nonrespondents in terms of the area-level characteristics available on the sampling frame, but the patterns to these differences were not always clear. A few of the more notable differences include the following:

- Late respondents were more likely to live in blocks with the lowest percentage of persons without a high school diploma.

- Late respondents were less likely to live in blocks with the highest Low Response Scores (that is, with the lowest expected mail return rates to the Decennial Census).

- Late respondents were more likely than final nonrespondents to live in areas with higher rates of high-speed internet connectivity.

Table C.1. Percentage distribution of selected observed characteristics, by final NHES:2019 screener response status: 2019

Selected observed characteristics	Number of addresses	Final NHES:2019 screener response status[1]		Chi-square statistic
		Late respondent	Final nonrespondent	
Total	700	80	620	†
Observation outcome				10.64 *
Observed	530	79.8	74.8	
Partially observed, could observe the exterior of the multi-unit building but not the sampled unit[2]	20	‡	3.1	
Not observed, could not locate address	120	10.7	17.4	
Not observed, could not access address	20	‡	2.6	
Not observed, other reason	20	7.1	2.1	
Structure type[3]				13.20 *
Single-unit	320	61.8	48.3	
Duplex	40	5.3	6.0	
Townhouse or rowhouse	50	11.8	6.5	
Low-rise apartment[4]	160	11.8	25.9	
Mid-rise apartment[4]	40	2.6	7.4	
High-rise apartment[4]	30	5.3	5.1	
Could not determine or missing	10	‡	0.7	
Residential occupancy status[5]				4.50
Occupied residential unit	470	82.9	71.5	
Residential unit, could not determine occupancy status	160	15.8	26.6	
Vacant residential unit[6]	10	‡	1.8	
Vacant lot	‡	#	‡	
Commercial business	#	#	#	
Mail access type[7]				12.55
Mail slot	30	2.7	5.7	
Mailbox attached to the home	190	22.7	30.7	
Mailbox at the end of the driveway	140	36.0	19.2	
Mailbox across the street or at the end of the road	70	10.7	11.2	
Mailbox, slot, or room in multi-unit building	90	10.7	14.5	
More than one type of mail access[8]	#	#	‡	
No mailbox or slot in view	50	6.7	7.8	
Could not determine or missing	70	10.7	10.6	
Household income				13.55 *
Bottom third of population	210	21.4	31.4	
Middle third of population	340	50.0	48.0	
Top third of population	100	25.0	12.2	
Could not determine	60	3.6	8.5	
Privacy or security concern[9,10]				2.78
Yes	170	40.9	30.7	
No	350	59.1	69.3	

See notes at end of table.

Table C.1. Percentage distribution of selected observed characteristics, by final NHES:2019 screener response status: 2019—Continued

Selected observed characteristics	Number of addresses	Final NHES:2019 screener response status[1] Late respondent	Final nonrespondent	Chi-square statistic
Outdoor living[9,11]				7.16 *
Yes	140	31.0	18.5	
No	560	69.0	81.5	
Presence of children[9,12]				0.01
Yes	110	21.2	21.8	
No	400	78.8	78.2	
Patriotism[9,13]				0.00
Yes	40	7.6	7.8	
No	480	92.4	92.2	
Welcoming decor[9,14]				0.18
Yes	40	6.0	4.9	
No	670	94.0	95.1	
Internet or television connectivity[9,15]				0.08
Yes	40	6.0	5.2	
No	660	94.0	94.8	
Speaking a language other than English[9,16]				1.07
Yes	30	3.0	6.2	
No	490	97.0	93.8	
Community involvement[9,17]				0.88
Yes	20	‡	3.8	
No	500	98.5	96.2	
Importance of religion[9,18]				8.78 *
Yes	10	6.0	1.3	
No	690	94.0	98.7	
Pride in education[9,19]				0.01
Yes	10	‡	1.3	
No	510	98.5	98.7	
Other outdoor decor[9,20]				1.73
Yes	130	23.8	17.9	
No	570	76.2	82.1	

†Not applicable.
#Rounds to zero.
‡Reporting standards not met. There are too few cases for a reliable estimate.
*p< 0.05.
[1]Late NHES respondents are those that responded after the fourth screener package was sent. Final nonrespondents are those that did not end up responding to NHES:2019.
[2]Partially observed addresses are those where the observer was able to observe the exterior of the multi-unit building but was not able to enter the building to observe the interior entry to the sampled unit.
[3]Structure type observations were not collected for addresses that could not be observed (e.g., cannot locate the address) or were observed to be nonresidential.
[4]Low-rise apartment buildings are those with 1 to 3 floors. Mid-rise apartment buildings are those with 4 to 6 floors. High-rise apartment buildings are those with 7 or more floors.
[5]Residential occupancy status was not collected for addresses that were not able to be observed (for example, for addresses that could not be located).
[6]Vacant residential unit includes (1) temporarily vacant addresses where the unit had a for sale or for rent sign or a lock box and there was no evidence of current occupants, (2) seasonally vacant addresses where the unit was located in a resort area and was well-maintained enough to suggest that it had tenants during other parts of the year, but there were no evidence of current occupants, and (3) permanently vacant addresses where the address appeared uninhabitable (e.g., boarded windows/doors, holes in the walls or roof), was condemned or was under construction.
[7]Mail access type observations were not collected for addresses that could not be observed (e.g., cannot locate the address) or were observed to be nonresidential or permanently vacant.
[8]This category includes addresses where mail could have been received in more than way (e.g., a house that has both a mail slot in the door and a mailbox at the end of the driveway).

[9]Household attributes were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multi-unit building but cannot gain entry to observe the sampled unit). Household attributes also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant.
[10]Addresses with privacy or security concerns are those where observers identified indicators that privacy or security is important to those living in the sampled unit. Examples include surveillance cameras, driveway gates, security company signs or stickers, and "No trespassing" signs. For multi-unit buildings, indicators that focused on the larger building in which the unit was located, such as entry buzzers or fences, were not included because they could be not directly associated with the sampled unit.
[11]Addresses that value outdoor living are those where observers identified indicators that people in the sampled unit spend time outdoors. Examples include patio furniture, porch swings/benches, swing sets, sporting goods, and grills. This variable was added during data processing based on patterns observed in write-in responses.
[12]Addresses where children are thought to be present are those where observers identified indicators that suggest children live in the sampled unit. Examples include toys, bikes, car seats, strollers, outdoor swings/play sets, and child finder stickers for firefighters.
[13]Patriotic addresses are those where observers identified indicators of American national or state-specific patriotism. They also include those with indicators of current or past involvement with the U.S military or pride in the U.S. military.
[14]Addresses with welcoming decor are those where observers noted the presence of an object that welcomes visitors to the sampled unit, such as a welcome mat or welcome sign that explicitly says “welcome.” This variable was added during data processing based on patterns observed in write-in responses.
[15]Addresses with internet or television connectivity are those where observers noted the presence of a satellite, cable, DirectTV dish or other electronic equipment, or a sign that indicates television or internet connectivity at the sampled unit. This variable was added during data processing based on patterns observed in write-in responses.
[16]Addresses that speak a language other than English are those where observers identified indicators that people in the sampled unit speak a language other than English. Examples include flags for non-English-speaking countries, in-home business signs, yard/window signs, or bumper stickers written in another language at the sampled unit; or a large number of flags, signs, or bumper stickers in (or including) another language in the surrounding neighborhood (even if indicators are not observed at the sampled unit).
[17]Addresses with community involvement are those where observers identified indicators that people in the sampled unit are involved in the community. Examples include political candidate signs or indicators of being involved with charities, kids’ sports/clubs, or neighborhood associations.
[18]Addresses that value religion are those where observers identified indicators that suggest that religion is important to the people in the sampled unit. Examples include “Bless this House” signs, religious figures or statues, or Mezuzahs. This variable was added during data processing based on patterns observed in write-in responses.
[19]Addresses with pride in education are those where observers identified indicators that education is important to the sampled unit. Examples include school, college and/or university flags or stickers; honor roll bumper stickers; or other indicators of pride in a child’s school.
[20]Addresses with other outdoor decor are those where observers noted the presence of items used to decorate the exterior of the sampled unit. Examples include gnomes, flamingos, yard art, decorative flags, wreaths, Easter decorations, water features, or windchimes. This attribute focuses only on decorative items and does not include items that represent another household attribute shown in the table (e.g., American flags were coded under patriotism only). This variable was added during data processing based on patterns observed in write-in responses.
NOTE: Addresses that were sampled for the qualitative nonresponse study in the "inconsistent UAA outcomes" group were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table C.2. Percentage distribution of selected observed characteristics, by final NHES:2019 screener response status: 2019

Selected characteristics	Number of addresses	Final NHES:2019 screener response status[1]		Chi-square statistic
		Late respondent	Final nonrespondent	
Total	700	80	620	†
NHES:2019 screener mailings language				6.61 *
All bilingual mailings (English and Spanish)	280	44.0	39.3	
Mix of bilingual mailings and English-only mailings	340	36.9	49.5	
All English-only mailings	90	19.0	11.2	
Age of head of household[2]				17.40 *
18–34	60	8.3	8.9	
35–44	100	15.5	14.1	
45–54	110	17.9	15.6	
55–64	90	11.9	13.3	
65 and older	90	25.0	10.9	
Missing	250	21.4	37.2	
Gender of head of household[2]				0.22
Male	220	33.3	30.8	
Female	200	27.4	28.9	
Missing	280	39.3	40.3	
Education of head of household[2]				10.83
Less than high school credential	150	15.5	22.4	
High school credential	110	22.6	14.8	
Some college	140	15.5	20.5	
Bachelor's degree	90	17.9	12.7	
Graduate degree	50	11.9	6.8	
Missing	160	16.7	22.9	
Race of head of household[2]				9.10
White, non-Hispanic	230	46.4	31.2	
Black, non-Hispanic	110	11.9	16.6	
Hispanic	160	21.4	22.6	
Other race, non-Hispanic	40	2.4	6.0	
Missing	160	17.9	23.7	
Household income[2]				14.79 *
Less than $50,000	280	27.4	42.0	
$50,000–$74,999	80	13.1	11.5	
$75,000–$99,999	80	22.6	10.1	
$100,000 or higher	170	26.2	23.2	
Missing	90	10.7	13.1	
Household flagged as having children[2]				10.14 *
Yes	180	39.3	23.2	
No	520	60.7	76.8	

See notes at end of table.

Table C.2. Percentage distribution of selected observed characteristics, by final NHES:2019 screener response status: 2019—Continued

Selected characteristics	Number of addresses	Final NHES:2019 screener response status[1]		Chi-square statistic
		Late respondent	Final nonrespondent	
Number of adults in household[2]				8.16 *
1 adult	390	47.6	56.5	
2 adults	160	35.7	21.8	
3 adults or more	60	6.0	8.6	
Missing	90	10.7	13.1	
Phone number available[2]				14.80 *
Yes	440	82.1	60.6	
No	260	17.9	39.4	
Route type[2]				6.57 *
Street	440	75.0	60.6	
High rise	260	25.0	39.4	
Dwelling type[2]				8.07 *
Single-unit	410	72.6	56.3	
Multi-unit	290	27.4	43.7	
Home tenure[2]				8.11 *
Own	360	65.5	49.0	
Rent	220	21.4	33.4	
Missing	120	13.1	17.5	
Urbanicity[2]				1.72
Urban	310	38.1	45.6	
Suburban	350	56.0	48.9	
Town	10	‡	1.0	
Rural	30	4.8	4.5	
Region[2]				1.47
Northeast	100	16.7	14.0	
South	300	46.4	42.4	
Midwest	200	25.0	29.1	
West	100	11.9	14.6	
Race/ethnicity stratum[2]				10.51 *
25% or more Black	170	16.7	25.8	
40% or more Hispanic	190	19.0	28.7	
Other	330	64.3	45.5	
Tract poverty rate[3]				3.33
Less than 20%	470	76.2	66.2	
20% or more	230	23.8	33.8	

See notes at end of table.

Table C.2. Percentage distribution of selected observed characteristics, by final NHES:2019 screener response status: 2019—Continued

Selected characteristics	Number of addresses	Final NHES:2019 screener response status[1]		Chi-square statistic
		Late respondent	Final nonrespondent	
Percent of households in Census block that include a child[3]				6.04 *
First quartile	190	21.4	27.1	
Second quartile	140	14.3	20.1	
Third quartile	180	35.7	24.2	
Fourth quartile	200	28.6	28.6	
Percent of persons in Census block that speak a language other than English[3]				11.48 *
First quartile	60	10.7	8.9	
Second quartile	120	22.6	16.4	
Third quartile	220	41.7	30.4	
Fourth quartile	290	25.0	44.3	
Percent of persons in Census block without a high school diploma or the equivalent[3]				15.78 *
First quartile	180	35.7	24.2	
Second quartile	130	26.2	18.2	
Third quartile	150	22.6	21.4	
Fourth quartile	240	15.5	36.2	
Low Response Score[4]				18.15 *
First quartile	140	31.0	18.4	
Second quartile	120	22.6	16.3	
Third quartile	160	26.2	21.8	
Fourth quartile	290	20.2	43.6	
Residential high-speed internet per 1000 households[5]				7.20 *
600 or less	160	13.1	23.7	
601-800	250	33.3	36.4	
801 or more	290	53.6	39.9	

† Not applicable.
‡ Reporting standards not met. There are too few cases for a reliable estimate.
* p< 0.05.
[1]Late NHES respondents are those that responded after the fourth screener mailing was sent. Final nonrespondents are those that never responded to NHES:2019.
[2]These characteristics are based on variables available on the NHES:2019 sampling frame.
[3]These characteristics are based on American Community Survey (2013-2017) five year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[4]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[5]This characteristic is based on tract-level estimates of internet penetration provided by the Federal Communications Commission (FCC).
NOTE: Addresses that were sampled for the qualitative nonresponse study in the "inconsistent UAA outcomes" group were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Detail may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

C.2 Fourth Screener Package UAA Addresses

About 30 of the sampled addresses ended up having their fourth NHES screener package returned as undeliverable even though none of their prior screener packages had been returned as such. We conducted an exploratory analysis of the characteristics of these addresses, with the purpose of determining whether fourth-screener-package-UAA-only addresses were more similar to addresses that did not have any UAA outcomes (and thus should be included in the nonrespondent results presented in this report) or to those that had inconsistent UAA outcomes for the first three screener packages (and thus should be included in the UAA address results presented in this report). Due to the small number of addresses fourth-screener-package-UAA-only cases, these results are not shown in tables.

Key takeaway: Fourth-screener-package-UAA-only cases were not consistently more similar to either the inconsistent UAA or no UAA groups. As a result, we decided to include fourth-screener-package-UAA-only cases in the UAA analyses (with the inconsistent UAA addresses) because we felt this was most consistent with their final NHES:2019 status.

Methods: We conducted the same comparisons as discussed for the first sensitivity analysis, except that we did not conduct statistical significance testing due to the small number of cases that only had the fourth screener mailing returned as undeliverable. We also removed the late respondents before doing this analysis because our first analysis showed that late respondents were systematically different from nonrespondent addresses. These tables are not included in the appendix because of small sample sizes.

Results: Overall, we found that these cases were not consistently more similar to either the inconsistent UAA or no UAA groups across the full set of compared characteristics. For example, they were more similar to inconsistent-UAA addresses in terms of observed residential occupancy status but more similar to non-UAA addresses in terms of the education of the head of household variable on the NHES sampling frame. For other variables, like the route type variable on the NHES sampling frame, they were not very similar to either of the other groups.

Appendix D. Additional Subgroup Analyses

This appendix provides additional details about the results of subgroup analyses. The goal of these analyses was to assess whether key themes in the interview and observation findings discussed in earlier chapters varied by interview participant or address characteristics. Section D.1 presents interview subgroup analyses, while section D.2 presents observation subgroup analyses.

D.1 Interview Subgroup Analyses

In this section, we discuss the findings of subgroup analyses related to interview participants' reported engagement with the NHES:2019 screener-phase mailings (see section 5.2.2 for the overall findings). A series of bivariate analyses were conducted using 16 auxiliary variables, including (1) interview participant self-reported characteristics (e.g., age, gender, race/ethnicity), (2) observation findings (e.g., structure type, mail access type), and (3) NHES:2019 and qualitative nonresponse study paradata (e.g., final screener response status, interview language). Because of the relatively small number of interview participants, the focus was on general patterns and statistical testing was not conducted.

D.1.1 Recalling Mailings

Seventy-seven percent of interview participants recalled at least one mailing (see table 5.1 in chapter 5). Overall, there did not tend to be large differences in the recall rate by participant characteristics. However, some subgroups stood out as being more or less likely than others to remember at least one mailing. For example, the recall rate decreased as the number of adults in the household increased. Eighty-eight percent of participants who were the only adult in their household remembered at least one mailing, compared to 63 percent of those who lived in households with three or more adults. In addition, the recall rate was lower for participants for whom observers had not been able to locate a mailbox; only 60 percent of them recalled at least one mailing, compared to 74 to 86 percent of participants for whom various mailbox types had been observed. Additional subgroup differences of note include:

- **Age:** Only 33 percent of participants who were ages 18-24 remembered at least one mailing, compared to 71 to 89 percent of participants in other age groups.[8]

- **Educational attainment:** Participants with graduate degrees were particularly likely to remember at least one mailing; all of them did so, compared to 73 to 76 percent of participants in the other educational attainment subgroups.

- **Employment status:** Eighty-one percent of employed participants remembered at least one mailing, compared to 67 percent of participants who were not employed.

[8] We considered the possibility that was driven by participants in the 25-54 age group feeling that the mailings were more relevant to them (since participants in this age range would be most likely to have children who are eligible for the topical surveys). However, participants who had children living with them were no more likely to remember at least one mailing than those who did not have children living with them.

D.1.2 Opening Mailings

Eighty percent of interview participants who remembered at least one mailing reported that they also had opened one or more mailings (see table 5.2 in chapter 5). There was some subgroup variation in the rate at which participants reported doing so. For example, in line with expectations, participants from households that ended up responding to the NHES were more likely to report opening at least one mailing (100 percent did so) than were participants from households who did not end up responding (75 percent did so). In addition, 94 percent of participants with children living in the home reported opening at least one mailing, compared to only 68 percent of participants who did not have children living in the home. Additional subgroup differences of note include:

- **Race/ethnicity and language spoken at home:** Eighty-nine percent of Hispanic participants reported opening at least one mailing, compared to 72 percent and 73 percent of White and Black participants. respectively. A similar pattern was observed for participants who lived in households where Spanish was the language most often spoken by adults (90 percent), compared to participants who lived in households where English was the language most often spoken by adults (76 percent).

- **Household income:** As household income increased, so did the rate at which participants reported having opened at least one mailing (91 percent of participants with household incomes over $100,000 versus 75 percent of those with household incomes less than $30,000). In addition, only 67 percent of participants who declined to share their household income opened at least one mailing.

- **Observed structure type:** Participants who lived in attached units were more likely to report opening at least one mailing (100 percent) than were participants who lived in single-unit homes or apartments (80 percent and 74 percent, respectively).

- **Observed mail access type:** Only 67 percent of participants who received their mail through a mailbox, slot or room in a multi-unit building reported opening at least one mailing, compared to 83 to 88 percent of participants with other mail access types.

- **Household size:** Participants living in households with two adults were more likely to report opening at least one mailing (97 percent). In comparison, only 58 percent of participants who lived in households with 3 or more adults reported opening at least one mailing.

- **Study site:** Ninety-one percent of participants from the California site reported opening at least one mailing, compared to 71 percent of participants from the Texas site.

D.1.3 Choosing Not to Respond

Among interview participants who opened at least one mailing, 56 percent chose not to complete the survey—that is, they rejected or discarded the mailings (see table 5.3 in chapter 5). There was again some variation by subgroup in the likelihood of this outcome.

For example, 80 percent of participants who were age 65 and older chose not to complete the survey, compared to less than 60 percent of participants who were ages of 35 to 64. In addition, participants who only had home internet access through a phone or tablet were more likely to choose not to complete the survey (73 percent) than were participants who had home internet access through a computer (49 percent). Additional subgroup differences of note include:

- **Race/ethnicity:** Sixty-nine percent of Black participants chose not to complete the survey, compared to 46 percent and 50 percent of White and Hispanic participants, respectively.

- **Educational attainment:** The less education a participant had, the more likely he or she was to choose not to complete the survey; 67 percent of participants who had a high school education or less chose not to complete the survey versus 50 percent of participants with some college or a bachelor's degree and 33 percent of participants with a graduate degree.

- **Structure type:** Forty-six percent of participants who lived in single-unit structures chose not to complete the survey, compared to 63 to 64 percent of participants who lived in other structure types.

- **Household income:** Seventy-five percent of participants whose household an income was between $30,001 and $60,000 chose not to complete the survey, compared to 50 percent or less of participants in each of the other income brackets. Sixty-seven percent of participants who refused to provide their household income did not complete the survey.

D.1.4 Saving Mailings for Later

Among interview participants who opened at least one mailing, 19 percent saved the materials for later or to give to someone else (see table 5.3 in chapter 5). There were again some subgroup differences in the likelihood of doing so. For example, about 43 percent of participants whose interview was conducted in Spanish saved the mailings, compared to 17 percent of participants whose interview was conducted in English. A similar pattern was observed based on the language spoken most often by adults in the household. Additional subgroup differences of note include:

- **Age:** Fifty percent of participants who were ages 55-64 saved the mailings, compared to 20 percent of participants who were ages 25-34.

- **Employment status:** Thirty-one percent of participants who were not employed for pay saved the mailings, compared to 14 percent of participants who were employed for pay.

- **Household size:** Forty percent of participants in single-adult households saved the mailings, compared to just 10 percent of participants in households with two adults.

- **Structure type:** Thirty-six percent of participants who lived in apartments saved the mailings, compared to 14 percent of participants who lived in single-unit structures.

D.1.5 Choosing to Respond

Finally, among interview participants who opened at least one mailing, 25 percent of them responded to the survey (see table 5.3 in chapter 5). There were again some subgroup differences in the likelihood of doing so. For example, participants with higher educational attainment responded at a higher rate than those with lower educational attainment; 50 percent of participants with a graduate degree responded, compared to 13 percent of participants with a high school degree or less. In addition, participants with higher household incomes were more likely to respond than were those with lower household incomes; 50 percent of the participants with household incomes over $100,000 responded, compared to 25 percent of participants with household incomes between $30,001 and $60,000. Additional subgroup differences of note include:

- **Race/ethnicity:** Thirty-nine percent of White participants responded to the survey, compared to 19 percent of Black participants.

- **Home internet access:** Participants who only had home internet access via a phone or tablet responded at a lower rate (none of them did so) than did those who had home internet access via a computer (33 percent of them did so).

- **Household size:** Thirty-three percent of participants who lived in two-adult households responded to the survey, compared to 13 percent of participants in single-adult households.

- **Study site:** Thirty-one percent of participants from the Ohio site responded to the survey, compared to 17 percent of participants from the Texas site.

D.2 Observation Subgroup Analyses

In this section, we discuss the subgroup analyses that were conducted for the following observation outcomes: address characteristics, household characteristics, and agreement with frame variables. Subgroup analyses were conducted using more than 20 auxiliary variables, including (1) variables available on the NHES:2019 sampling frame (e.g., age, gender, or race of the head of household), (2) variables appended to the frame file from other publicly available federal government sources (e.g., tract poverty rate, percentage of households in Census block that include a child), and (3) NHES:2019 paradata (e.g., bilingual mailing status). For each observation outcome, we began by conducting a series of bivariate relationships; we used chi-square tests to identify statistically significant relationships. In most cases, we identified a considerable number of statistically significant bivariate relationships. Therefore, for each of the observation outcomes, we next conducted a multivariate logistic regression where the dependent variable was the observation outcome, and the independent variables were the same variables that had been included in the bivariate analyses. We identified statistically significant predictor variables using Wald joint

significance tests. All analyses in this section are limited to nonrespondent addresses that did not have UAA outcomes.

D.2.1 Address Characteristics

As part of the observation component of the study, observers collected information about the addresses at which nonrespondents lived: structure type and mail access type. For the overall results for these outcomes, see section 3.3.1 (structure type) and section 4.1.2 (mail access type).

Structure type

For the subgroup analyses, we used a collapsed version of structure type (single-unit, attached, apartment).[9] As shown in table D.1, almost all of the bivariate relationships were statistically significant. The multivariate analysis showed that 9 of the 21 independent variables included in the model were significant predictors of structure type (see table D.2). The most notable subgroup differences were for frame variables that also measured structure type. For example, addresses classified on the frame as multi-unit were particularly likely to be observed to be apartments (87 percent of addresses noted as multi-unit versus 3 percent of cases noted as single-unit), while cases classified on the frame as single-unit were particularly likely to be observed to be single-unit structures (83 percent of addresses noted as single-unit versus 3 percent of addresses noted as multi-unit). The same patterns were seen for the route type variable on the frame. Additional significant predictors in the multivariate analysis include:

- **Gender of head of household:** Addresses where the head of household was male were more likely to be single-unit structures (64 percent of those with a male head of household versus 51 percent of those with a female head of household), while those where the head of household was female were more likely to be attached structures (20 percent of those with a female head of household versus 7 percent of those with a male head of household).

- **Education of head of household:** Addresses where the head of household had a graduate degree were particularly likely to be single-unit structures (81 percent versus 61 percent or less of other education subgroups) and particularly unlikely to be observed to be apartments (11 percent versus 27 percent or more of other education subgroups).

- **Household income:** As household income increased, addresses became more likely to be single-unit structures (for example, 63 percent of addresses with household incomes of $100,000 or higher versus 48 percent of addresses with household incomes less than $50,000). The opposite pattern was seen for apartments (for example, 23 percent of addresses with household incomes of $100,000 or higher as opposed to 40 percent of addresses with household incomes less than $50,000).

[9] Structure type could not be determined for a very small number of addresses. They were excluded from this analysis.

- **Number of adults in household:** Addresses with only one adult living in them were particularly likely to be apartments (45 percent of addresses with one adult versus 9 percent of addresses with two adults) and were particularly unlikely to be single-unit structures (40 percent of addresses with one adult versus 81 percent of addresses with 2 adults and 90 percent of addresses with three or more adults).

- **Home tenure:** Addresses that were inhabited by their owner were particularly likely to be single-unit structures (79 percent of addresses inhabited by their owner versus 26 percent of rented addresses), while addresses that were rented were particularly likely to be apartments (57 percent of rented addresses versus 11 percent of owned addresses).

- **Region:** There were mild differences in the distribution of structure type by region. Addresses in the Midwest were somewhat more likely than those in other regions to be single-unit structures (for example, 59 percent of Midwestern addresses versus 42 percent of Northeastern addresses) and somewhat less likely than those in other regions to be apartments (for example, 29 percent of Midwestern addresses versus 44 percent of Southern addresses). In addition, addresses in the Northeast were slightly more likely than those in other regions to be attached structures (22 percent versus 13 percent or less of addresses in other regions).

- **Low Response Score:** Addresses in block groups with lower scores (i.e., block groups with higher expected mail return rates to the Decennial Census) were more likely to be single-unit structures than were addresses in block groups with higher scores (i.e., block groups with lower expected mail return rates to the Decennial Census) (85 percent of first quartile addresses versus 27 percent of fourth quartile addresses). The opposite pattern was seen for apartments (6 percent of first quartile addresses were apartments, versus 59 percent of fourth quartile addresses).

In addition, addresses that were missing information (for gender of head of household, education of head of household, household income, number of adults in the household, home tenure) were particularly likely to be apartments. For example, about 70 percent of addresses that were missing information about the education of the head of household were observed to be apartments, as opposed to 32 percent or less of addresses in the other education subgroups. We also observed this pattern for several of the bivariate analyses (see chapter 7 for additional analysis of the observed and self-reported characteristics of addresses that were missing information for frame variables).

Table D.1. Percentage distribution of observed structure type for observed, occupied, residential, nonrespondent addresses, by selected characteristics: 2019

Selected characteristics	Number of addresses	Observed structure type[1]			Chi-square statistic
		Single-unit	Attached	Apartment	
Total	**530**	**49.9**	**12.9**	**37.2**	†
NHES:2019 screener mailings language					17.41 *
All bilingual mailings (English and Spanish)	200	49.5	15.8	34.7	
Mix of bilingual mailings and English- only mailings	270	45.3	11.3	43.4	
All English-only mailings	60	71.0	9.7	19.4	
Age of head of household[2]					88.94 *
18–34	50	50.0	12.0	38.0	
35–44	80	60.5	9.2	30.3	
45–54	90	73.9	13.6	12.5	
55–64	70	67.1	9.6	23.3	
65 and older	60	56.7	15.0	28.3	
Missing	180	24.7	14.8	60.4	
Gender of head of household[2]					39.91 *
Male	160	64.4	6.8	28.8	
Female	160	51.2	19.8	29.0	
Missing	200	37.3	12.3	50.5	
Education of head of household[2]					83.35 *
Less than high school credential	120	51.7	16.1	32.2	
High school credential	80	60.0	10.0	30.0	
Some college	110	56.3	17.0	26.8	
Bachelor's degree	70	60.9	7.3	31.9	
Graduate degree	40	81.1	8.1	10.8	
Missing	110	17.7	12.4	69.9	
Race of head of household[2]					73.75 *
White, non-Hispanic	170	63.2	11.1	25.7	
Black, non-Hispanic	90	52.3	18.6	29.1	
Hispanic	120	59.2	11.7	29.2	
Other race, non-Hispanic	40	47.2	16.7	36.1	
Missing	120	19.8	11.2	69.0	
Household income[2]					72.53 *
Less than $50,000	220	48.4	12.0	39.6	
$50,000–$74,999	70	63.1	13.9	23.1	
$75,000–$99,999	60	57.9	12.3	29.8	
$100,000 or higher	130	62.8	14.0	23.3	
Missing	60	6.6	13.1	80.3	
Household flagged as having children[2]					25.60 *
Yes	140	65.9	14.8	19.3	
No	390	44.4	12.2	43.4	

See notes at end of table.

Table D.1. Percentage distribution of observed structure type for observed, occupied, residential, nonrespondent addresses, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observed structure type[1]			Chi-square statistic
		Single-unit	Attached	Apartment	
Number of adults in household[2]					147.91 *
1 adult	300	39.9	15.0	45.2	
2 adults	120	81.0	10.3	8.6	
3 adults or more	50	90.2	5.9	‡	
Missing	60	6.6	13.1	80.3	
Phone number available[2]					48.01 *
Yes	330	61.2	12.2	26.6	
No	200	31.7	13.9	54.5	
Route type[2]					385.54 *
Street	330	77.5	16.5	6.0	
High rise	200	2.6	6.7	90.8	
Dwelling type[2]					406.35 *
Single-unit	310	82.7	14.4	2.9	
Multi-unit	220	2.8	10.6	86.6	
Home tenure[2]					208.68 *
Own	270	78.6	10.0	11.4	
Rent	180	25.7	17.7	56.6	
Missing	80	7.2	12.1	80.7	
Urbanicity[2]					53.55 *
Urban	240	34.0	13.6	52.3	
Suburban	270	60.6	12.6	26.8	
Town	‡	‡	‡	‡	
Rural	‡	‡	‡	‡	
Region[2]					16.04 *
Northeast	80	41.6	22.1	36.4	
South	220	45.7	10.5	43.8	
Midwest	150	59.1	11.7	29.2	
West	80	51.9	12.7	35.4	
Race/ethnicity stratum[2]					5.66
25% or more Black	140	45.3	14.6	40.2	
40% or more Hispanic	160	49.7	9.0	41.3	
Other	240	52.7	14.4	32.9	
Tract poverty rate[3]					16.15 *
Less than 20%	360	55.5	13.0	31.6	
20% or more	170	38.5	12.6	48.9	
Percent of households in Census block that include a child[3]					24.93 *
First quartile	140	36.4	10.0	53.6	
Second quartile	110	51.3	15.0	33.6	
Third quartile	120	55.1	17.0	28.0	
Fourth quartile	160	57.0	10.8	32.3	

See notes at end of table.

Table D.1. Percentage distribution of observed structure type for observed, occupied, residential, nonrespondent addresses, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observed structure type[1]			Chi-square statistic
		Single-unit	Attached	Apartment	
Percent of persons in Census block that speak a language other than English[3]					21.82 *
First quartile	40	68.2	15.9	15.9	
Second quartile	90	60.0	15.3	24.7	
Third quartile	160	50.9	9.8	39.3	
Fourth quartile	240	42.2	13.5	44.3	
Percent of persons in Census block without a high school diploma or the equivalent[3]					7.82
First quartile	120	47.1	12.6	40.3	
Second quartile	100	59.4	14.9	25.7	
Third quartile	120	50.9	11.0	38.1	
Fourth quartile	190	46.1	13.1	40.8	
Low Response Score[4]					117.36 *
First quartile	100	85.4	8.7	5.8	
Second quartile	90	63.6	15.9	20.5	
Third quartile	120	51.7	11.9	36.4	
Fourth quartile	220	26.9	13.7	59.4	
Residential high-speed internet per 1000 households[5]					6.97
600 or less	120	42.2	14.1	43.8	
601-800	200	49.7	10.8	39.5	
801 or more	210	54.5	14.1	31.5	

†Not applicable.
‡Reporting standards not met. There are too few cases for a reliable estimate.
*p < 0.05.
[1]Attached structures include duplexes, townhouses, and rowhouses. Apartments include low-, medium-, and high-rise apartments. Structure type was not able to be determined for a very small number of cases, and these cases have been excluded from this analysis.
[2]These characteristics are based on variables available on the NHES:2019 sampling frame.
[3]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[4]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[5]This characteristic is based on tract-level estimates of internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The structure type observation was not collected for addresses that could not be observed (e.g., cannot locate the address). Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. Addresses that were observed to be nonresidential were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table D.2. Wald joint significance tests from multinomial logistic regression predicting structure type, by independent variables: 2019

Independent variables	Wald test statistic
NHES:2019 bilingual screener mailings status	3.83
Age of head of household[1]	10.21
Gender of head of household[1]	10.48 *
Education of head of household[1]	21.62 *
Race of head of household[1]	9.42
Household income[1]	17.84 *
Whether household flagged as having children[1]	0.60
Number of adults in household[1]	22.49 *
Whether phone number available[1]	1.42
Route type[1]	12.57 *
Dwelling type[1]	18.54 *
Home tenure[1]	26.89 *
Urbanicity[1,2]	7.69
Region[1]	22.33 *
Race/ethnicity stratum[3]	3.44
Tract poverty rate[3]	1.07
Percent of households in Census block that include a child[3]	5.63
Percent of persons in Census block that speak a language other than English[3]	9.30
Percent of persons in Census block without a high school diploma or the equivalent[3]	10.00
Low Response Score[4]	15.39 *
Residential high-speed internet per 1000 households[5]	2.56

*$p < .05$.
[1]These variables are available on the NHES:2019 sampling frame.
[2] This variable originally had four categories (urban, suburban, town, rural), but the town and rural categories had to be collapsed for this analysis due to sample size constraints.
[3] These characteristics are based on American Community Survey (2013-2017) five-year estimates.
[4]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[5]This variable is based on tract-level estimates of Internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The dependent variable is a collapsed version of the observed structure type with three categories—single-unit, attached, and apartment. "Single-unit" is the reference category. Attached structures include duplexes, townhouses, and rowhouses. Apartments include low-, medium-, and high-rise apartments. Missing values on the independent variables are treated as a separate category. Structure type observations were not collected for addresses that could not be observed (e.g., cannot locate the address). Structure type was not able to be determined for a very small number of cases, and these cases have been excluded from this analysis. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. Addresses that were observed to be nonresidential were excluded from this analysis. The pseudo R^2 value for the model is 0.70. The rounded sample size is 530.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Mail access type

For the subgroup analyses, we used a slightly collapsed version of mail access type (mail slot or mailbox attached to the home; mailbox at the end of the driveway, across the street, or at the end of the road; mailbox, slot, or room in multi-unit building; no mailbox or slot in view; could not determine). Like the structure type analyses, nearly all of the bivariate relationships were statistically significant (see table D.3). The multivariate analysis showed that 5 of the 22 independent variables included in the model were significant predictors of

mail access type (see table D.4).[10] The most notable differences were for variables that measured structure type. For example, while two-fifths of addresses flagged on the frame as being high-rise route types had mailboxes, slots, or rooms in multi-unit buildings (40 percent), this mail access type was very rare for addresses with street route types. While observers were not able to determine the mail access type for about a quarter of addresses with high-rise route types (22 percent), this outcome was very rare for addresses with a street route type (2 percent). The same patterns were seen for observed structure type. Additional significant predictors in the multivariate analysis include:

- **Race/ethnicity stratum:**[11] Addresses in the Black oversample stratum were more likely to have, mail slots or mailboxes attached to the home than they were to have other mail access types (48 percent versus 20 percent or less for other types). In contrast, addresses in the other strata (Hispanic oversample and Other), were more evenly split between two mail access types: (1) mail slot or mailbox attached to the home and (2) mailbox at the end of the driveway, across the street, or at the end of the road (39 percent and 31 percent, respectively for the Hispanic oversample stratum, and 30 and 37 percent, respectively for the Other stratum).

- **Percentage of persons in Census block without a high school diploma or the equivalent:** Addresses in Census blocks with lower percentages of persons without a high school diploma or the equivalent (first and second quartiles) were more likely than addresses with higher percentages of such persons (third and fourth quartiles) to have a mailbox at the end of the driveway, across the street, or at the end of the road (about two-fifths versus about a quarter). Addresses in Census blocks with the *lowest* percentages of persons without a high school diploma or the equivalent (first quartile) also were less likely than other addresses to have a mail slot or mailbox attached to their home (24 percent versus 38 percent or more of addresses in other quartiles).

- **Low Response Score:** Addresses in block groups with the lowest scores were more likely than other addresses to have a mailbox at the end of the driveway, across the street, or at the end of the road (57 percent in the first quartile versus less than a third of addresses in other quartiles). In addition, observers were more likely to be unable to determine mail access type for addresses in block groups with a higher score (first and second quartiles) than for those in block groups with a lower score (third and fourth quartile) (about one-seventh versus less than 1 in 20).

In addition, observers also tended to be more likely to be unable to determine the mail access type for addresses that were missing information on the frame (e.g., education and race of head of household, household income, number of adults in the household, home tenure). For example, observers could not determine the mail access type for a quarter of the addresses that were missing household income information on the frame (26 percent), as opposed to

[10] In addition to the 21 variables included in the structure type analysis, we also included the mail access type observation here.
[11] Addresses in the Black oversample stratum for the NHES sample design are those in Census tracts with 25 percent or more Black persons. Addresses in the Hispanic oversample stratum are those with 40 percent or more Hispanic persons *and not* 25 percent or more Black persons. All other addresses are in the "other" stratum.

less than 10 percent of addresses for which household income information was available on the frame.

Table D.3. Percentage distribution of observed mail access type for observed, occupied, residential, nonrespondent addresses, by selected characteristics: 2019

Selected characteristics	Number of addresses	Observed mail access type[1]					Chi-square statistic
		Mail slot or mailbox attached to the home	Mailbox at the end of the driveway, across the street, or at the end of the road	Mailbox, slot or room in multi-unit building	No mailbox or slot in view	Could not determine	
Total	**530**	**37.3**	**30.7**	**14.9**	**7.5**	**9.6**	†
Observed structure type[2]							269.29 *
Single-unit	260	47.0	45.5	#	6.1	1.5	
Attached	70	54.4	33.8	‡	8.8	‡	
Apartment	200	18.3	9.6	39.6	9.1	23.4	
NHES:2019 screener mailings language							8.36
All bilingual mailings (English and Spanish)	200	36.6	31.2	14.9	5.9	11.4	
Mix of bilingual mailings and English-only mailings	270	35.3	30.1	16.5	9.4	8.7	
All English-only mailings	60	47.6	31.8	7.9	4.8	7.9	
Age of head of household[3]							65.85 *
18–34	50	39.2	29.4	11.8	5.9	13.7	
35–44	80	43.4	36.8	11.8	5.3	‡	
45–54	90	39.8	46.6	5.7	4.6	3.4	
55–64	70	42.5	35.6	11.0	‡	8.2	
65 and older	60	38.3	35.0	11.7	8.3	6.7	
Missing	180	30.6	17.5	24.0	12.0	15.9	
Gender of head of household[3]							26.23 *
Male	160	39.6	36.0	11.0	4.3	9.2	
Female	160	44.4	29.0	9.3	9.9	7.4	
Missing	210	29.8	27.8	22.4	8.3	11.7	
Education of head of household[3]							84.12 *
Less than high school credential	120	45.4	30.3	11.8	7.6	5.0	
High school credential	80	33.8	37.5	6.3	15.0	7.5	
Some college	110	47.3	28.6	13.4	5.4	5.4	
Bachelor's degree	70	31.9	39.1	13.0	5.8	10.1	
Graduate degree	40	35.1	54.1	8.1	#	‡	
Missing	110	25.4	15.8	29.0	7.9	21.9	

See notes at end of table.

Table D.3. Percentage distribution of observed mail access type for observed, occupied, residential, nonrespondent addresses, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observed mail access type[1]					
		Mail slot or mailbox attached to the home	Mailbox at the end of the driveway, across the street, or at the end of the road	Mailbox, slot or room in multi-unit building	No mailbox or slot in view	Could not determine	Chi-square statistic
Race of head of household[3]							83.25 *
White, non-Hispanic	170	35.1	42.7	11.7	4.7	5.9	
Black, non-Hispanic	90	55.8	17.4	9.3	11.6	5.8	
Hispanic	120	38.8	37.2	9.9	7.4	6.6	
Other race, non-Hispanic	40	30.6	36.1	19.4	8.3	‡	
Missing	120	27.4	14.5	27.4	8.6	22.2	
Household income[3]							71.44 *
Less than $50,000	220	39.6	25.4	16.6	10.1	8.3	
$50,000–$74,999	70	40.9	40.9	6.1	6.1	6.1	
$75,000–$99,999	60	43.9	31.6	14.0	5.3	5.3	
$100,000 or higher	130	36.4	43.4	7.8	4.7	7.8	
Missing	60	21.0	11.3	33.9	8.1	25.8	
Household flagged as having children[3]							23.34 *
Yes	140	46.7	37.8	8.2	4.4	3.0	
No	400	34.1	28.3	17.2	8.6	11.9	
Number of adults in household[3]							
1 adult	300	37.9	27.2	16.9	7.6	10.3	84.66 *
2 adults	120	37.6	46.2	4.3	9.4	2.6	
3 adults or more	50	52.9	39.2	‡	‡	‡	
Missing	60	21.0	11.3	33.9	8.1	25.8	
Phone number available[3]							25.86 *
Yes	330	39.8	35.9	11.3	6.4	6.7	
No	200	33.2	22.3	20.8	9.4	14.4	

See notes at end of table.

Table D.3. Percentage distribution of observed mail access type for observed, occupied, residential, nonrespondent addresses, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observed mail access type[1]					Chi-square statistic
		Mail slot or mailbox attached to the home	Mailbox at the end of the driveway, across the street, or at the end of the road	Mailbox, slot or room in multi-unit building	No mailbox or slot in view	Could not determine	
Route type[3]							260.38 *
Street	340	49.7	42.0	‡	5.7	2.4	
High rise	200	15.9	11.3	40.0	10.8	22.1	
Dwelling type[3]							236.84 *
Single-unit	310	47.9	44.7	#	5.4	1.9	
Multi-unit	220	22.0	10.6	36.2	10.6	20.6	
Home tenure[3]							112.93 *
Own	270	42.7	42.7	4.4	6.6	3.7	
Rent	180	36.6	21.1	22.3	8.6	11.4	
Missing	80	21.4	11.9	33.3	8.3	25.0	
Urbanicity[3]							52.49 *
Urban	240	34.6	23.6	19.8	7.6	14.3	
Suburban	270	43.1	32.7	11.2	7.4	5.6	
Town	‡	‡	‡	‡	‡	‡	
Rural	‡	‡	‡	‡	‡	‡	
Region[3]							45.58 *
Northeast	80	37.7	36.4	13.0	6.5	6.5	
South	220	24.2	37.9	19.2	10.0	8.7	
Midwest	160	54.8	18.7	10.3	4.5	11.6	
West	80	38.8	28.8	13.8	7.5	11.3	
Race/ethnicity stratum[4]							19.52 *
25% or more Black	140	47.8	19.6	17.4	5.1	10.1	
40% or more Hispanic	160	39.1	30.8	12.2	9.0	9.0	
Other	240	30.0	37.1	15.2	8.0	9.7	
Tract poverty rate[4]							10.24 *
Less than 20%	360	35.8	34.9	14.4	6.8	8.2	
20% or more	180	40.3	22.2	15.9	9.1	12.5	

See notes at end of table.

Table D.3. Percentage distribution of observed mail access type for observed, occupied, residential, nonrespondent addresses, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observed mail access type[1]					Chi-square statistic
		Mail slot or mailbox attached to the home	Mailbox at the end of the driveway, across the street, or at the end of the road	Mailbox, slot or room in multi-unit building	No mailbox or slot in view	Could not determine	
Percent of households in Census block that include a child[4]							35.12 *
First quartile	140	36.2	17.7	24.8	6.4	14.9	
Second quartile	110	41.6	30.1	14.2	6.2	8.0	
Third quartile	120	39.8	37.3	9.3	8.5	5.1	
Fourth quartile	160	33.3	37.7	10.7	8.8	9.4	
Percent of persons in Census block that speak a language other than English[4]							20.34
First quartile	50	51.1	31.1	6.7	6.7	4.4	
Second quartile	90	48.2	29.4	8.2	‡	11.8	
Third quartile	160	30.1	34.4	16.6	8.6	10.4	
Fourth quartile	240	35.7	28.6	17.6	8.8	9.2	
Percent of persons in Census block without a high school diploma or the equivalent[4]							37.44 *
First quartile	120	23.5	36.1	19.3	6.7	14.3	
Second quartile	100	38.6	40.6	6.9	5.0	8.9	
Third quartile	120	44.9	26.3	18.6	‡	7.6	
Fourth quartile	190	40.4	24.9	14.0	12.4	8.3	
Low Response Score[5]							70.85 *
First quartile	100	36.9	57.3	‡	‡	1.9	
Second quartile	90	46.6	29.5	12.5	6.8	4.5	
Third quartile	120	36.4	24.6	17.8	7.6	13.6	
Fourth quartile	220	34.4	21.7	20.4	10.4	13.1	
Residential high-speed internet per 1000 households[6]							32.96 *
600 or less	120	44.7	22.0	17.1	8.9	7.3	
601-800	200	46.2	24.1	13.9	5.1	10.8	
801 or more	210	24.9	41.8	14.6	8.9	9.9	

†Not applicable.
#Rounds to zero.
‡Reporting standards not met. There are too few cases for a reliable estimate.
*$p < 0.05$.
[1]A few cases where mail was received in more than one way were categorized under "mail slot or mailbox attached to the home" since all the ways mail was received fit that category.
[2]Attached structures include duplexes, townhouses, and rowhouses. Apartments include low-, medium-, and high-rise apartments. Structure type was not able to be determined for a very small number of cases, and these cases have been excluded from this analysis.
[3]These characteristics are based on variables available on the NHES:2019 sampling frame.

[4]These characteristics are based on American Community Survey (2013-2017) five year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[5]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[6]This characteristic is based on tract-level estimates of internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The mail access type observation was not collected for addresses that could not be observed (e.g., cannot locate the address) or were observed to be nonresidential or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; and U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table D.4. Wald joint significance tests from multinomial logistic regression predicting mail access type, by independent variables: 2019

Independent variables	Wald test statistic
Observed structure type	21.48 *
NHES:2019 bilingual screener mailings status	4.94
Age of head of household[1]	17.35
Gender of head of household[1]	14.59
Education of head of household[1]	20.33
Race of head of household[1]	22.35
Household income[1]	21.40
Whether household flagged as having children[1]	4.92
Number of adults in household[1]	13.12
Whether phone number available[1]	0.61
Route type[1]	23.02 *
Dwelling type[1,2]	†
Home tenure[1]	1.36
Urbanicity[1,3]	6.81
Region[1]	18.39
Race/ethnicity stratum[4]	17.48 *
Tract poverty rate[4]	4.32
Percent of households in Census block that include a child[4]	17.46
Percent of persons in Census block that speak a language other than English[4]	7.26
Percent of persons in Census block without a high school diploma or the equivalent[4]	23.00 *
Low Response Score[5]	27.95 *
Residential high-speed internet per 1000 households[6]	12.45

†Not applicable.
*$p < .05$.
[1]These variables are available on the NHES:2019 sampling frame.
[2]Dwelling type was dropped from the model because all multi-unit dwellings had the same value for the dependent variable (mailbox, slot, or room in multi-unit building).
[3]This variable originally had four categories (urban, suburban, town, rural), but the town and rural categories had to be collapsed for this analysis due to sample size constraints.
[4] These characteristics are based on American Community Survey (2013-2017) five-year estimates.
[5]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[6]This variable is based on tract-level estimates of Internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The dependent variable is a collapsed version of the observed mail access type with five categories—mail slot or mailbox attached to the home; mailbox at the end of the driveway, across the street or at the end of the road; mailbox, slot, or room in multi-unit building; no mailbox or slot in view; and could not determine. "Could not determine" is the reference category. Missing values on the independent variables are treated as a separate category. The mail access type observation was not collected for addresses that could not be observed (e.g., cannot locate the address) or were observed to be nonresidential or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. The pseudo R^2 value for the model is 0.43. The rounded sample size is 530.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

D.2.2 Household Characteristics

Many of the household characteristic observations involved noting the presence of an indicator (e.g., the presence of children, patriotism) (see section 3.3 for the overall results). For these outcomes, we only conducted subgroup analysis when the characteristic was observed in at least 20 percent of addresses. For the household characteristic observations discussed in this section, in addition to the analyses described in earlier sections of this appendix, we also conducted a second set of subgroup analyses to determine if there were statistically significant relationships between the various observation variables. For each of the characteristics discussed below, we conducted (1) 10 additional observation subgroup bivariate analyses and (2) a second multinomial regression for each characteristic that included the observation variables as independent variables. For several of these observation variables, structure type was a significant predictor of the presence of household characteristics, with apartments being less likely than single-unit homes to have observable evidence of the household characteristics. This is likely due to the more limited outdoor space that can be directly attributed to individual apartments (e.g., limited to balcony, unit door) compared to single-unit homes (e.g., front/back/side yard, driveway (including cars)).

Presence of children

As compared to the address characteristic observations discussed in section D.2.1, fewer of the bivariate relationships were statistically significant: 7 of the 21 auxiliary variables and 5 of the 10 observation variables (see tables D.5 and D.6 at the end of this section). However, as shown in tables D.7 and D.8 the end of this section, only two variables were statistically significant predictors of observing the presence of children in the multivariate models.

- **Race of head of household:** The presence of children was observed less often for households where the frame indicated the head of household was Black (10 percent) than it was for households where the head of household was White or Hispanic (26 percent each).

- **Outdoor living observation:** Addresses that were observed to value outdoor living were more likely to be observed to have children living in them than addresses that were not observed to value outdoor living (50 percent versus 12).

In addition, there were several indications that it was more challenging to observe household attributes in multi-unit addresses; this finding is repeated for several of the observation analyses discussed in this appendix. For example, addresses flagged on the frame as being high-rise addresses were observed to have children living in them less often than street addresses (10 percent versus 25 percent), and addresses flagged on the frame as being multi-unit addresses were observed to have children living in them less often than single-unit addresses (8 versus 27 percent). Similarly, addresses observed to be attached units or apartment were less likely to be observed to have children living in them (14 percent and 12 percent, respectively) than were single-unit structures (27 percent). Finally, addresses observed to have a mailbox, slot, or room in a multi-unit building were observed to have

children living in them less often (7 percent) than were addresses that were observed to have a mail slot or mailbox attached to the home or to have a mailbox at the end of the driveway, across the street, or at the end of the road (22 percent and 29 percent, respectively).

Privacy or security concerns

There was a statistically significant bivariate relationship between the privacy or security concerns observation and 11 of the 21 auxiliary variables and 4 of the 10 observation variables (see tables D.5 and D.6). In the multivariate models, three auxiliary variables and two observation variables were statistically significant predictors of observing privacy or security concerns (see tables D.7 and D.8). The most notable differences were for variables that measured structure type. For example, addresses that were observed to be single-unit structures were particularly likely to be observed to have privacy or security concerns, attached units were somewhat less likely to do so, and apartments were much less likely to do so (43 percent, 24 percent, and 6 percent, respectively). A similar pattern was observed for the route type variable on the sampling frame. Additional significant predictors in the multivariate analysis include:

- **Observed mail access type:** Addresses whose mail access was attached to the home or was nearby were most likely to be observed to have privacy or security concerns (39 percent and 34 percent, respectively).

- **Region:** Addresses in the Northeast were less likely than addresses in other regions to be observed to have privacy or security concerns (18 percent versus 30 percent or more of address in other regions).

- **Residential high-speed internet per 1000 households:** Addresses in areas with the lowest rate of high-speed internet penetration were somewhat more likely to be observed to have privacy or security concerns (37 percent versus 31 percent or less of addresses in areas with higher rates of penetration).

Outdoor living

There was a statistically significant bivariate relationship between the outdoor living observation and 7 of the 21 auxiliary variables and 5 of the 10 observation variables (see tables D.5 and D.6). In the multivariate models, only three variables (one auxiliary variable and two observation variables) were statistically significant predictors of the outdoor living observation (see tables D.7 and D.8).

- **Phone number available:** Addresses that had a phone number available on the sampling frame were more likely than those that did not to be observed to value outdoor living (30 percent versus 13 percent).

- **Presence of children observation:** Similar to the finding noted in the "presence of children" analysis, addresses where children were observed to live were also more likely to be observed to value outdoor living than were those addresses that were not

observed to have children living in them or where it was unclear whether or not children lived there (57 percent versus 16 percent).

- **Other outdoor decor observation:** Addresses that were observed to have other outdoor decor were more likely to be observed to value outdoor living than were those addresses that were not observed to have other outdoor decor (41 percent versus 19 percent).

Other outdoor decor

There was a statistically significant bivariate relationship between the other outdoor decor observation and 10 of the 21 auxiliary variables and 7 of the 10 observation variables (see tables D.5 and D.6). In the multivariate models, 4 auxiliary variables and 4 observation variables were statistically significant predictors of the other outdoor decor (see tables D.7 and D.8). Structure type was again a notable predictor of the presence of other outdoor decor; addresses that were observed to be single-unit structures were more likely to have outdoor decor (33 percent), while those observed to be apartments were less likely to do so (8 percent). It also appeared that some households were more likely overall to leave items of various types outside of their homes. For example, addresses that were observed to have indicators of several other household attributes also tended to be more likely to be observed to have other outdoor decor. For example, those addresses observed to value outdoor living were more likely to have other outdoor decor than those not observed to value outdoor living (41 percent versus 19 percent);those that had indicators of patriotism were more likely to have other outdoor decor than those without indicators of patriotism (82 percent versus 20 percent); and those that had welcoming decor were more likely to have other outdoor decor than those without welcoming decor (34 percent versus 24 percent). Additional significant predictors in the multivariate analysis include:

- **Education of head of household:** Addresses where the frame indicated the head of the household had less than a high school credential or a bachelor's degree were more likely to have other outdoor decor (33 percent and 36 percent, respectively) than other addresses (21 percent or less of addresses in other education subgroups).

- **Urbanicity:** Addresses in suburban areas were somewhat more likely than those in urban areas to have outdoor decor (26 percent versus 20 percent).

- **Percentage of households in Census block that include a child:** Addresses located in Census blocks in the second quartile in terms of the percentage of households with a child were more likely than other addresses to have outdoor decor (33 percent versus 24 percent or less of addresses in other quartiles).

- **Low Response Score:** Addresses in Census blocks whose score was in the fourth quartile were the least likely to have other outdoor decor (15 percent). Addresses in Census blocks who score was in the second quartile were the most likely to have outdoor decor (42 percent).

Table D.5. Percentage of observed, occupied, residential, nonrespondent addresses with observed household attributes, by observed household attributes and selected characteristics: 2019

Selected characteristics	Number of addresses	Observed household attributes: Presence of children[1] Percentage	Presence of children[1] Chi-square statistic	Privacy or security concerns[2] Percentage	Privacy or security concerns[2] Chi-square statistic	Outdoor living[3] Percentage	Outdoor living[3] Chi-square statistic	Other outdoor decor[4] Percentage	Other outdoor decor[4] Chi-square statistic
Total	**440**	**21.4**	†	**31.2**	†	**24.6**	†	**24.6**	†
NHES:2019 screener mailings language			3.36		0.47		4.18		1.10
All bilingual mailings (English and Spanish)	170	17.3		30.4		21.4		22.6	
Mix of bilingual mailings and English-only mailings	220	23.0		30.9		24.4		24.9	
All English-only mailings	50	27.8		35.2		35.2		29.6	
Age of head of household[5]			12.48 *		10.02		3.14		5.74
18–34	40	39.5		41.9		27.9		23.3	
35–44	70	26.9		32.8		23.9		17.9	
45–54	80	19.5		39.0		29.3		32.9	
55–64	60	19.0		30.2		27.0		23.8	
65 and older	50	19.2		32.7		25.0		28.9	
Missing	130	15.9		22.0		19.7		22.0	
Gender of head of household[5]			5.46		6.75 *		6.95 *		3.46
Male	140	27.5		33.8		32.4		29.6	
Female	140	20.8		36.8		20.1		20.1	
Missing	150	16.3		23.5		21.6		24.2	
Education of head of household[5]			5.31		15.64 *		2.36		12.10 *
Less than high school credential	110	22.4		33.6		25.2		32.7	
High school credential	70	23.2		27.5		21.7		20.3	
Some college	100	21.2		40.4		24.0		18.3	
Bachelor's degree	60	26.8		32.1		25.0		35.7	
Graduate degree	40	25.7		37.1		34.3		17.1	
Missing	70	11.8		13.2		22.1		20.6	
Race of head of household[5]			9.98 *		11.21 *		8.70		11.87 *
White, non-Hispanic	150	26.0		33.3		32.0		28.7	
Black, non-Hispanic	80	10.3		39.7		15.4		10.3	
Hispanic	110	26.1		32.4		24.3		29.7	
Other race, non-Hispanic	‡	‡		‡		‡		‡	
Missing	70	16.9		15.5		21.1		22.5	

See notes at end of table.

Table D.5. Percentage of observed, occupied, residential, nonrespondent addresses with observed household attributes, by observed household attributes and selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observed household attributes: Presence of children[1] Percentage	Presence of children[1] Chi-square statistic	Privacy or security concerns[2] Percentage	Privacy or security concerns[2] Chi-square statistic	Outdoor living[3] Percentage	Outdoor living[3] Chi-square statistic	Other outdoor decor[4] Percentage	Other outdoor decor[4] Chi-square statistic
Household income[5]			8.71		12.40 *		8.46		4.40
Less than $50,000	180	21.2		30.7		21.2		25.7	
$50,000–$74,999	60	30.0		40.0		36.7		26.7	
$75,000–$99,999	50	18.0		28.0		24.0		18.0	
$100,000 or higher	110	23.7		36.0		27.2		28.1	
Missing	40	‡		8.3		13.9		13.9	
Household flagged as having children[5]			7.35 *		2.56		5.38 *		0.01
Yes	130	29.7		36.7		32.0		24.2	
No	310	18.0		28.9		21.5		24.8	
Number of adults in household[5]			8.91 *		13.85 *		5.83		3.12
1 adult	240	20.7		29.5		22.4		24.5	
2 adults	110	28.6		40.2		31.3		25.9	
3 adults or more	50	20.0		36.0		28.0		30.0	
Missing	40	‡		8.3		13.9		13.9	
Phone number available[5]			2.39		2.73		15.84 *		7.86 *
Yes	290	23.5		33.8		30.4		28.7	
No	150	17.1		26.0		13.0		16.4	
Route type[5]			12.33 *		50.84 *		10.53 *		20.35 *
Street	330	25.5		40.5		28.5		30.1	
High rise	110	9.7		4.4		13.3		8.9	
Dwelling type[5]			18.80 *		48.33 *		10.26 *		26.43 *
Single-unit	310	26.9		41.2		28.9		31.5	
Multi-unit	130	8.4		7.6		14.5		8.4	
Home tenure[5]			2.45		21.38 *				14.47 *
Own	260	23.0		39.3		29.2	8.00 *	30.7	
Rent	140	21.5		23.0		20.0		18.5	
Missing	50	12.8		10.6		12.8		8.5	

See notes at end of table.

Table D.5. Percentage of observed, occupied, residential, nonrespondent addresses with observed household attributes, by observed household attributes and selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observed household attributes: Presence of children[1] Percentage	Presence of children[1] Chi-square statistic	Privacy or security concerns[2] Percentage	Privacy or security concerns[2] Chi-square statistic	Outdoor living[3] Percentage	Outdoor living[3] Chi-square statistic	Other outdoor decor[4] Percentage	Other outdoor decor[4] Chi-square statistic
Urbanicity[5]			1.38		4.92		5.65		8.29 *
Urban	180	18.8		27.3		20.5		19.9	
Suburban	240	23.0		34.7		26.8		25.9	
Town	‡	‡		‡		‡		‡	
Rural	‡	‡		‡		‡		‡	
Region[5]			1.72		8.27 *		1.52		5.09
Northeast	70	20.0		18.5		27.7		24.6	
South	190	21.3		30.3		22.3		21.3	
Midwest	120	19.4		38.7		24.2		24.2	
West	60	27.4		32.3		29.0		35.5	
Race/ethnicity stratum[6]			13.81 *		3.21		5.31		6.20 *
25% or more Black	110	10.6		37.2		16.8		15.9	
40% or more Hispanic	130	30.2		31.8		25.6		27.1	
Other	200	21.8		27.4		28.4		27.9	
Tract poverty rate[6]			0.01		0.06		0.05		6.83 *
Less than 20%	300	21.3		31.6		24.9		28.2	
20% or more	140	21.7		30.4		23.9		16.7	
Percent of households in Census block that include a child[6]			1.17		7.52		5.58		5.04
First quartile	100	18.2		22.2		18.2		20.2	
Second quartile	100	20.4		27.6		31.6		32.7	
Third quartile	100	22.3		37.9		27.2		21.4	
Fourth quartile	140	23.7		35.3		22.3		24.5	
Percent of persons in Census block that speak a language other than English[6]			1.10		3.42		4.15		6.52
First quartile	40	19.5		36.6		31.7		26.8	
Second quartile	70	26.1		39.1		31.9		36.2	
Third quartile	140	20.4		28.5		22.6		22.6	
Fourth quartile	190	20.8		29.2		21.9		21.4	

See notes at end of table.

Table D.5. Percentage of observed, occupied, residential, nonrespondent addresses with observed household attributes, by observed household attributes and selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Observed household attributes: Presence of children[1] Percentage	Presence of children[1] Chi-square statistic	Privacy or security concerns[2] Percentage	Privacy or security concerns[2] Chi-square statistic	Outdoor living[3] Percentage	Outdoor living[3] Chi-square statistic	Other outdoor decor[4] Percentage	Other outdoor decor[4] Chi-square statistic
Percent of persons in Census block without a high school diploma or the equivalent[6]			1.72		8.93*		1.20		5.26
First quartile	100	19.0		23.2		25.3		27.4	
Second quartile	90	18.0		39.3		27.0		30.3	
Third quartile	90	24.5		38.3		26.6		26.6	
Fourth quartile	160	23.0		27.3		21.7		18.6	
Low Response Score[7]			5.19		12.37 *		7.40		21.10 *
First quartile	100	22.8		41.6		32.7		25.7	
Second quartile	80	27.9		29.1		29.1		41.8	
Third quartile	90	24.2		37.4		22.0		26.4	
Fourth quartile	170	16.2		22.8		19.2		15.0	
Residential high-speed internet per 1000 households[8]			0.59		2.43		1.14		2.20
600 or less	100	24.0		37.0		23.0		19.0	
601-800	160	21.3		27.7		22.6		26.5	
801 or more	180	20.1		31.0		27.2		26.1	

† Not applicable.
‡Reporting standards not met. There are too few cases for a reliable estimate.

* $p < 0.05$.
[1]Addresses where children are thought to be present are those where observers identified indicators that suggest children live in the sampled unit. Examples include toys, bikes, car seats, strollers, outdoor swings/play sets, and child finder stickers for firefighters.
[2]Addresses with privacy or security concerns are those where observers identified indicators that privacy or security is important to those living in the sampled unit. Examples include surveillance cameras, driveway gates, security company signs or stickers, and "No trespassing" signs. For multi-unit buildings, indicators that focused on the larger building in which the unit was located, such as entry buzzers or fences, were not included because they could be not directly associated with the sampled unit.
[3]Addresses that value outdoor living are those where observers identified indicators that people in the sampled unit spend time outdoors. Examples include patio furniture, porch swings/benches, swing sets, sporting goods, and grills. This variable was added during data processing based on patterns observed in write-in responses.
[4]Addresses with other outdoor decor are those where observers noted the presence of items used to decorate the exterior of the sampled unit. Examples include gnomes, flamingos, yard art, decorative flags, wreaths, Easter decorations, water features, or windchimes. This attribute focuses only on decorative items and does not include items that represent another household attribute collected during the observation (e.g., American flags were coded under patriotism only). This variable was added during data processing based on patterns observed in write-in responses.
[5]These characteristics are based on variables available on the NHES:2019 sampling frame.
[6]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[7]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[8]This characteristic is based on tract-level estimates of internet penetration provided by the Federal Communications Commission (FCC).

NOTE: Percentages represent the percentage of addresses for which the attribute was observed. The household attributes shown here were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multi-unit building but cannot gain entry to observe the sampled unit). They also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table D.6. Percentage of observed, occupied, residential, nonrespondent addresses with observed household attributes, by observed household attributes and selected observed characteristics: 2019

Selected observed characteristics	Number of addresses	Observed household attributes: Presence of children[1] Percentage	Presence of children[1] Chi-square statistic	Privacy or security concerns[2] Percentage	Privacy or security concerns[2] Chi-square statistic	Outdoor living[3] Percentage	Outdoor living[3] Chi-square statistic	Other outdoor decor[4] Percentage	Other outdoor decor[4] Chi-square statistic
Total	440	21.4	†	31.2	†	24.6	†	24.6	†
Presence of children[1]			†		8.58 *		69.57 *		7.12 *
Yes	90	†		43.6		57.4		35.1	
No or unclear[5]	350	†		27.8		15.7		21.7	
Privacy or security concerns[2]			8.58 *		†		2.27		3.94 *
Yes	140	29.9		†		29.2		30.7	
No	300	17.6		†		22.5		21.9	
Outdoor living[3]			69.57 *		2.27		†		20.11 *
Yes	110	50.0		37.0		†		40.7	
No	330	12.1		29.3		†		19.3	
Patriotism[6]			2.62		0.85		5.46 *		66.27 *
Yes	30	32.4		38.2		41.2		82.4	
No	410	20.5		30.6		23.2		19.8	
Welcoming decor[7]			1.07		0.72		0.91		1.63
Yes	30	13.8		24.1		17.2		34.5	
No	410	22.0		31.7		25.1		23.9	
Internet or television connectivity[8]			0.04		0.07		1.32		0.51
Yes	30	20.0		33.3		33.3		30.0	
No	410	21.5		31.1		24.0		24.2	
Other outdoor decor[4]			7.12 *		3.94 *		20.11 *		†
Yes	110	30.6		38.9		40.7		†	
No	330	18.4		28.7		19.3		†	
Structure type[9]			12.59 *		51.56 *		12.43 *		26.43 *
Single-unit	260	26.9		43.2		29.5		33.0	
Attached	70	13.6		24.2		25.8		18.2	
Apartment	110	12.1		5.6		12.1		8.4	

See notes at end of table.

Table D.6. Percentage of observed, occupied, residential, nonrespondent addresses with observed household attributes, by observed household attributes and selected observed characteristics: 2019—Continued

		Observed household attributes							
		Presence of children[1]		Privacy or security concerns[2]		Outdoor living[3]		Other outdoor decor[4]	
Selected observed characteristics	Number of addresses	Percentage	Chi-square statistic	Percentage	Chi-square statistic	Percentage	Chi-square statistic	Percentage	Chi-square statistic
Mail access type[10]			13.10 *		29.73 *		14.50 *		8.84 *
Mail slot or mailbox attached to the home	190	21.6		39.5		24.2		24.2	
Mailbox at the end of the driveway, across the street, or at the end of the road	160	28.7		34.4		33.1		29.9	
Mailbox, slot, or room in multi-unit building	50	6.5		‡		8.7		8.7	
No mailbox or slot in view	40	11.1		13.9		13.9		22.2	
Household income[11]			2.35		1.65		0.69		6.84 *
Bottom third	140	22.1		27.9		25.7		17.6	
Middle third	230	19.3		34.3		23.6		26.6	
Top third	50	28.8		30.8		28.8		34.6	

†Not applicable.

‡Reporting standards not met. There are too few cases for a reliable estimate.

*$p < 0.05$.

[1]Addresses where children are thought to be present are those where observers identified indicators that suggest children live in the sampled unit. Examples include toys, bikes, car seats, strollers, outdoor swings/play sets, and child finder stickers for firefighters.

[2]Addresses with privacy or security concerns are those where observers identified indicators that privacy or security is important to those living in the sampled unit. Examples include surveillance cameras, driveway gates, security company signs or stickers, and "No trespassing" signs. For multi-unit buildings, indicators that focused on the larger building in which the unit was located, such as entry buzzers or fences, were not included because they could be not directly associated with the sampled unit.

[3]Addresses that value outdoor living are those where observers identified indicators that people in the sampled unit spend time outdoors. Examples include patio furniture, porch swings/benches, swing sets, sporting goods, and grills. This variable was added during data processing based on patterns observed in write-in responses.

[4]Addresses with other outdoor decor are those where observers noted the presence of items used to decorate the exterior of the sampled unit. Examples include gnomes, flamingos, yard art, decorative flags, wreaths, Easter decorations, water features, or windchimes. This attribute focuses only on decorative items and does not include items that represent another household attribute collected during the observation (e.g., American flags were coded under patriotism only). This variable was added during data processing based on patterns observed in write-in responses.

[5]This category includes both addresses where there was evidence suggesting children did not live there (e.g., the address was a senior living facility) and those where observers could not tell if children were living there. These have been combined due to the very small number of addresses where there was evidence suggesting children did not live there.

[6]Patriotic addresses are those where observers identified indicators of American national or state-specific patriotism. They also include those with indicators of current or past involvement with the U.S military or pride in the U.S. military.

[7]Addresses with welcoming decor are those where observers noted the presence of an object that welcomes visitors to the sampled unit, such as a welcome mat or welcome sign that explicitly says “welcome.” This variable was added during data processing based on patterns observed in write-in responses.

[8]Addresses with internet or television connectivity are those where observers noted the presence of a satellite, cable, DirectTV dish or other electronic equipment, or a sign that indicates television or internet connectivity at the sampled unit. This variable was added during data processing based on patterns observed in write-in responses.

[9]Attached structures include duplexes, townhouses, and rowhouses. Apartments include low-, medium-, and high-rise apartments. Structure type was not able to be determined for a very small number of cases, and these cases have been excluded from this analysis.

[10]A few cases where mail was received in more than one way were categorized under "mail slot or mailbox attached to the home" since all the ways mail was received fit into that category. Mail access type was not able to be determined for a very small number of cases, and these cases have been excluded from this analysis.

[11]Observers were asked to provide their best estimate of whether the address's household income was in the bottom third, middle third, or top third as compared to other households across the United States.

NOTE: Percentages represent the percentage of addresses for which the attribute was observed. The household attributes shown here were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multi-unit building but cannot gain entry to observe the sampled unit). They also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were

excluded from this analysis. Sample sizes are rounded to the nearest 10. Percentages are rounded to one decimal place but have not been changed to reflect sample size rounding. Details may not sum to totals because of rounding.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table D.7. Wald joint significance tests from binomial logistic regression using auxiliary variables to predict presence of children, privacy or security concerns, outdoor living, and other outdoor decor, by independent variables: 2019

Independent variables	Presence of children[1]	Privacy or security concerns[2]	Outdoor living[3]	Other outdoor decor[4]
NHES:2019 bilingual screener mailings status	4.74	2.07	3.53	0.11
Age of head of household[5]	8.58	3.52	1.67	10.25
Gender of head of household[5]	1.84	2.64	4.83	0.48
Education of head of household[5]	5.17	4.85	3.93	16.09 *
Race of head of household[5]	10.21 *	1.34	2.00	8.52
Household income[5]	3.64	2.50	4.91	7.27
Whether household flagged as having children[5]	1.36	0.50	2.78	0.06
Number of adults in household[5]	2.41	2.90	0.84	0.63
Whether phone number available[5]	0.01	0.36	11.54 *	1.71
Route type[5]	0.00	8.40 *	1.56	0.00
Dwelling type[5]	0.00	0.46	0.44	1.47
Home tenure[5]	3.21	2.06	1.01	3.42
Urbanicity[5,6]	2.33	1.51	0.81	6.06 *
Region[5]	5.32	9.33 *	3.47	5.44
Race/ethnicity stratum[7]	4.71	4.23	1.08	0.64
Tract poverty rate[7]	0.46	0.08	2.13	1.77
Percent of households in Census block that include a child[7]	1.78	2.38	4.58	8.48 *
Percent of persons in Census block that speak a language other than English[7]	1.38	0.45	3.00	5.67
Percent of persons in Census block without a high school diploma or the equivalent[7]	2.02	6.41	0.95	1.93
Low Response Score[8]	1.08	5.97	2.21	8.91 *
Residential high-speed internet per 1000 households[9]	2.59	7.77 *	0.95	0.88

*$p < .05$.

[1]Addresses where children are thought to be present are those where observers identified indicators that suggest children live in the sampled unit. Examples include toys, bikes, car seats, strollers, outdoor swings/play sets, and child finder stickers for firefighters.

[2]Addresses with privacy or security concerns are those where observers identified indicators that privacy or security is important to those living in the sampled unit. Examples include surveillance cameras, driveway gates, security company signs or stickers, and "No trespassing" signs. For multi-unit buildings, indicators that focused on the larger building in which the unit was located, such as entry buzzers or fences, were not included because they could be not directly associated with the sampled unit.

[3]Addresses that value outdoor living are those where observers identified indicators that people in the sampled unit spend time outdoors. Examples include patio furniture, porch swings/benches, swing sets, sporting goods, and grills. This variable was added during data processing based on patterns observed in write-in responses.

[4]Addresses with other outdoor decor are those where observers noted the presence of items used to decorate the exterior of the sampled unit. Examples include gnomes, flamingos, yard art, decorative flags, wreaths, Easter decorations, water features, or windchimes. This attribute focuses only on decorative items and does not include items that represent another household attribute collected during the observation (e.g., American flags were coded under patriotism only). This variable was added during data processing based on patterns observed in write-in responses.

[5]These variables are available on the NHES:2019 sampling frame.

[6]This variable originally had four categories (urban, suburban, town, rural), but the town and rural categories had to be collapsed for this analysis due to sample size constraints.

[7]These characteristics are based on American Community Survey (2013-2017) five-year estimates.

[8]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.

[9]This variable is based on tract-level estimates of Internet penetration provided by the Federal Communications Commission (FCC).

NOTE: The dependent variable for each model is a binary indicator of whether the attribute was observed at the address. Missing values on the independent variables are treated as a separate category. These household attributes were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multiunit building but cannot gain entry to observe the sampled unit). They also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. The pseudo R^2 value for the models are 0.20, 0.23, 0.14 and 0.24, respectively. The rounded sample size is 440.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table D.8. Wald joint significance tests from binomial logistic regression using observation variables to predict presence of children, privacy or security concerns, outdoor living, and other outdoor decor, by independent variables: 2019

Independent variables	Presence of children[1]	Privacy or security concerns[2]	Outdoor living[3]	Other outdoor decor[4]
Presence of children	†	2.44	47.63 *	0.10
Privacy or security concerns[2]	2.75	†	0.13	0.72
Outdoor living[3]	47.26 *	0.09	†	9.58 *
Patriotism[5]	0.28	0.63	0.01	28.91 *
Welcoming decor[6]	0.01	2.05	0.64	8.93 *
Internet or television connectivity[7]	0.46	0.28	0.71	0.42
Other outdoor decor[4]	0.16	0.69	9.06 *	†
Structure type[8]	3.42	19.51 *	0.92	7.95 *
Mail access type[9]	1.32	8.24 *	3.84	0.42
Household income[10]	1.92	1.57	0.74	0.50

†Not applicable.
*$p < .05$.
[1]Addresses where children were thought to be present are those where observers identified indicators that suggest children live in the sampled unit. Examples include toys, bikes, car seats, strollers, outdoor swings/play sets, and child finder stickers for firefighters.
[2]Addresses with privacy or security concerns are those where observers identified indicators that privacy or security is important to those living in the sampled unit. Examples include surveillance cameras, driveway gates, security company signs or stickers, and "No trespassing" signs. For multi-unit buildings, indicators that focused on the larger building in which the unit was located, such as entry buzzers or fences, were not included because they could be not directly associated with the sampled unit.
[3]Addresses that value outdoor living are those where observers identified indicators that people in the sampled unit spend time outdoors. Examples include patio furniture, porch swings/benches, swing sets, sporting goods, and grills. This variable was added during data processing based on patterns observed in write-in responses.
[4]Addresses with other outdoor decor are those where observers noted the presence of items used to decorate the exterior of the sampled unit. Examples include gnomes, flamingos, yard art, decorative flags, wreaths, Easter decorations, water features, or windchimes. This attribute focuses only on decorative items and does not include items that represent another household attribute collected during the observation (e.g., American flags were coded under patriotism only). This variable was added during data processing based on patterns observed in write-in responses.
[5]Patriotic addresses are those where observers identified indicators of American national or state-specific patriotism. They also include those with indicators of current or past involvement with the U.S military or pride in the U.S. military.
[6]Addresses with welcoming decor are those where observers noted the presence of an object that welcomes visitors to the sampled unit, such as a welcome mat or welcome sign that explicitly says “welcome.” This variable was added during data processing based on patterns observed in write-in responses.
[7]Addresses with internet or television connectivity are those where observers noted the presence of a satellite, cable, DirectTV dish or other electronic equipment, or a sign that indicates television or internet connectivity at the sampled unit. This variable was added during data processing based on patterns observed in write-in responses.
[8]Structure type categories are single-unit, attached and apartment. Attached structures include duplexes, townhouses, and rowhouses. Apartments include low-, medium-, and high-rise apartments. Structure type was not able to be determined for a very small number of cases, and these cases have been excluded from this analysis.
[9]Mail access type categories are mail slot or mailbox attached to the home; mailbox at the end of the driveway, across the street or at the end of the road; mailbox, slot, or room in multi-unit building; and no mailbox or slot in view. A few cases where mail was received in more than one way were categorized under "mail slot or mailbox attached to the home" since all the ways mail was received fit into that category. Mail access type was not able to be determined for a very small number of cases, and these cases have been excluded from this analysis.
[10]Household income categories are bottom third, middle third, or top third, as compared to other households across the United States.
NOTE: The dependent variable for each model is a binary indicator of whether the attribute was observed at the address. Each attribute was excluded from the model predicting that attribute (e.g., the independent variable presence of children was excluded from the model predicting presence of children). These household attributes were not collected for addresses that could not be observed (e.g., cannot locate the address) or for which only a partial address observation could be completed (e.g., can observe the multiunit building but cannot gain entry to observe the sampled unit). They also were not collected for addresses that were observed to be nonresidential or temporarily or permanently vacant. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from this analysis. The pseudo R^2 values for the models predicting presence of children, privacy or security concerns, outdoor living, and other outdoor decor are 0.18, 0.14, 0.17, and 0.21, respectively. The rounded sample size is 410.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

D.2.3 Agreement with Frame Variables

For observations that were also available on the sampling frame, we calculated agreement rates between the observations and the frame variables (see section 7.3.1 for the overall results). In most cases, the frame variable that measured the same thing as the observation variable was a significant predictor of agreement; for example, the structure type agreement rate was significantly higher for multi-unit addresses than for single-unit ones. In the multivariate analyses, relatively few significant predictors of agreement were identified for most of the observation variables. Those that were identified varied across the four observation variables; no subgroup variable was a significant predictor of agreement for more than two of the four observation variables. Two variables were significant predictors of two agreement rates; for one of these (tract poverty rate) the direction of the relationship was consistent in both analyses, but for the other (head of household level of education) it was inconsistent.

Occupancy status

Only two of the 21 bivariate relationships were statistically significant (see table D.9 at the end of this section). To be consistent with the other analyses discussed in this appendix, we still conducted the multivariate analysis, which identified the following significant predictors of the structure type agreement rate (see table D.10 at the end of this section); however, the magnitude of the differences between subgroups was generally very small.[12]

- **NHES:2019 bilingual mailing status:** The agreement rate for address occupancy status was very similar by bilingual screener mailing status, where the agreement rate was about 95 percent for English-only mailings as well as for all bilingual mailings.

- **Gender of head of household:** The agreement rate was somewhat lower for addresses missing frame data for this characteristic (93 percent) than it was for addresses with a male head of household (97 percent) or a female head of household (99 percent).

- **Dwelling type:** The agreement rate was somewhat lower for single-unit structures (95 percent) than it was for multi-unit structures (99 percent).

- **Percentage of households in Census block that include a child:** The agreement rate was lower for addresses in the third quartile (51st to 75th percentile) for this characteristic (90 percent) than it was for addresses in the other quartiles (98 percent or above).

[12] For this model, the following predictors had to be dropped because one or more of the categories perfectly predicted the outcome: age of head of household, education of head of household, race/ethnicity of head of household, number of adults in household, and route type. Please interpret the results for this model with caution.

- **Low Response Score:** The agreement rate was slightly higher for the addresses with the lowest scores (i.e., those in the first quartile) (98 percent) than it was for those with the highest scores (i.e., those in the fourth quartile) (95 percent).

- **Residential high-speed internet per 1,000 households:** The agreement rate was slightly higher for addresses in areas with higher rates of high-speed internet connectivity (98 percent in areas with 801 or more households per 1,000 with high-speed internet versus 93 percent in areas with 600 or less households per 1,000 with high-speed internet).

Structure type

For the subgroup analyses, 6 of the 21 bivariate relationships were statistically significant (see table D.9); the multivariate analysis identified two significant predictors of the structure type agreement rate (see table D.10).[13]

- **Region:** The agreement rate was lower for addresses in the Northeast (78 percent) and West (84 percent) than it was for addresses in the South and Midwest (92 percent for both).

- **Tract poverty rate:** The agreement rate was higher for addresses in high-poverty tracts (those with 20 percent or more of households in poverty) than it was for other addresses (92 percent versus 87 percent).

Presence of children

For the subgroup analyses, 10 of the 21 bivariate relationships were statistically significant (see table D.9); the multivariate analysis identified only one significant predictor of the presence of children agreement rate (see table D.10).[14]

- **Head of household level of education:** The agreement rate for the presence of children was higher for addresses whose head of household had a graduate degree as their highest level of education (80 percent) than it was for addresses whose head of household had lower levels of education (65 percent or less in each group). It was also higher for addresses whose head of household was missing education information on the sampling frame (85 percent).

Household income

For the subgroup analyses, 10 the 21 bivariate relationships were statistically significant (see table D.9); the multivariate analysis identified three significant predictors of the household structure agreement rate (see table D.10).[15]

[13] For this model, the route type and dwelling type variables were excluded because they were the frame indicators of structure type, and the goal of this analysis was to determine whether *other* address characteristics affect the accuracy of these indicators on the frame.
[14] For this model, the presence of children variable was excluded because it was the frame indicator of the presence of children and the goal of this analysis was to determine whether *other* address characteristics affect the accuracy of this indicator on the frame. In addition, the number of adults in the household variable was dropped from the model due to multicollinearity.
[15] For this model, the household income variable was excluded from the model because it was the frame indicators of household income, and the goal of this analysis was to determine whether *other* address characteristics affect the accuracy of this indicator on the frame.

- **Head of household level of education:** The agreement rate was higher for addresses whose head of household had a high school credential or less than a high school credential as their highest level of education (52 percent and 57 percent, respectively) than it was for addresses whose head of household had higher levels of education (36 percent or less in each group). It was also higher for addresses whose head of household was missing education information on the sampling frame (60 percent).

- **Home tenure:** The agreement rate was lower for addresses inhabited by the homeowner than it was for addresses inhabited by renters (40 percent versus 55 percent).

- **Tract poverty rate:** The agreement rate was higher for addresses in high-poverty tracts (those with 20 percent or more of households in poverty) than it was for other addresses (60 percent versus 38 percent).

Table D.9. Agreement rate between frame and observation variables for nonrespondent households, by variable and selected characteristics: 2019

Selected characteristics	Occupancy status		Structure type		Presence of children		Household income	
	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic
Total	**96.3**	†	**88.8**	†	**66.7**	†	**45.5**	†
NHES:2019 screener mailings language		0.56		1.19		4.32		3.53
All bilingual mailings (English and Spanish)	95.5		87.2		72.6		42.3	
Mix of bilingual mailings and English-only mailings	97.0		89.2		62.7		49.8	
All English-only mailings	96.1		91.9		64.8		39.0	
Age of head of household[1]		4.65		1.98		33.20 *		4.72
18–34	97.6		92.2		58.1		39.6	
35–44	95.2		88.2		47.8		46.0	
45–54	97.3		89.9		54.9		48.9	
55–64	96.8		90.7		68.3		37.8	
65 and older	100.0		85.0		78.9		54.0	
Missing	93.8		88.0		81.1		45.7	
Gender of head of household[1]		5.62		6.72 *		5.18		0.65
Male	97.1		92.1		68.3		43.4	
Female	98.5		83.5		59.7		47.8	
Missing	93.2		90.2		71.9		45.4	
Education of head of household[1]		9.87		6.41		22.22 *		26.55 *
Less than high school credential	96.8		86.7		65.4		57.4	
High school credential	90.3		90.4		59.4		51.8	
Some college	97.8		83.6		65.4		36.2	
Bachelor's degree	98.2		91.3		50.0		30.9	
Graduate degree	100.0		94.7		80.0		29.0	
Missing	96.6		91.4		85.3		59.6	
Race of head of household[1]		3.83		5.51		13.67*		15.62 *
White, non-Hispanic	95.2		88.7		66.7		40.1	
Black, non-Hispanic	97.0		87.5		65.4		41.8	
Hispanic	98.0		85.1		56.8		57.9	
Other race, non-Hispanic	100.0		86.1		69.0		27.3	
Missing	93.7		94.2		83.1		52.6	

See notes at end of table

Table D.9. Agreement rate between frame and observation variables for nonrespondent households, by variable and selected characteristics: 2019—Continued

Selected characteristics	Occupancy status		Structure type		Presence of children		Household income	
	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic
Household income[1]		2.38		9.10		19.12 *		31.95 *
Less than $50,000	95.1		88.4		67.6		47.4	
$50,000–$74,999	98.3		81.5		53.3		60.0	
$75,000–$99,999	95.6		93.2		58.0		65.5	
$100,000 or higher	96.4		87.0		67.5		27.3	
Missing	100.0		96.8		94.4		†	
Household flagged as having children[1]		0.07		0.05		111.77 *		0.63
Yes	96.7		88.2		29.7		42.7	
No	96.1		88.9		82.0		46.7	
Number of adults in household[1]		4.95		3.43 *		18.12 *		3.07
1 adult	94.6		85.5		68.1		48.1	
2 adults	97.2		89.8		60.7		38.7	
3 adults or more	100.0		96.1		54.0		46.2	
Missing	100.0		96.8		94.4		#	
Phone number available[1]		0.54		3.21		2.64		0.09
Yes	96.8		86.8		64.2		46.0	
No	95.3		91.8		71.9		44.5	
Route type[1]		4.32 *		24.59 *		11.41 *		1.50
Street	95.3		83.6		62.3		43.6	
High rise	100.0		97.5		79.7		49.7	
Dwelling type[1]		2.95		27.82 *		13.45 *		1.78
Single-unit	95.4		82.8		61.4		43.3	
Multi-unit	99.0		97.3		79.4		49.7	
Home tenure[1]		0.26		6.72 *		12.26 *		10.73 *
Own	96.4		90.6		63.4		40.3	
Rent	96.6		83.9		65.2		55.0	
Missing	94.9		92.9		89.4		35.5	

See notes at end of table

Table D.9. Agreement rate between frame and observation variables for nonrespondent households, by variable and selected characteristics: 2019—Continued

Selected characteristics	Occupancy status		Structure type		Presence of children		Household income	
	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic
Urbanicity[1]		1.90		1.63		4.54		9.14 *
Urban	94.9		89.8		72.2		49.5	
Suburban	97.3		87.5		62.8		42.2	
Town	‡		‡		‡		‡	
Rural	‡		‡		‡		‡	
Region[1]		4.46		14.98 *		0.73		1.91
Northeast	98.4		77.9		64.6		45.2	
South	97.0		92.0		68.6		43.3	
Midwest	93.4		91.9		64.5		45.0	
West	98.3		83.8		67.7		52.9	
Race/ethnicity stratum[2]		0.24		1.56		3.36		8.27 *
25% or more Black	95.5		90.0		68.1		46.2	
40% or more Hispanic	96.7		90.5		60.5		54.7	
Other	96.4		86.9		70.1		39.1	
Tract poverty rate[2]		0.89		2.30		0.17		21.21 *
Less than 20%	96.9		87.3		66.1		38.1	
20% or more	94.9		91.7		68.1		60.4	
Percent of households in Census block that include a child[2]		15.44 *		3.00		15.30 *		5.73
First quartile	98.8		92.3		77.8		36.4	
Second quartile	97.9		87.0		65.3		45.4	
Third quartile	89.8		86.1		72.8		49.1	
Fourth quartile	98.4		89.0		55.4		50.0	
Percent of persons in Census block that speak a language other than English[2]		5.76		1.05		4.58		4.31
First quartile	94.7		91.3		61.0		45.5	
Second quartile	92.7		86.2		65.2		41.9	
Third quartile	99.2		89.8		73.7		40.3	
Fourth quartile	96.0		88.5		63.5		50.7	

See notes at end of table

Table D.9. Agreement rate between frame and observation variables for nonrespondent households, by variable and selected characteristics: 2019—Continued

Selected characteristics	Occupancy status		Structure type		Presence of children		Household income	
	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic	Agreement rate	Chi-square statistic
Percent of persons in Census block without a high school diploma or the equivalent[2]		2.29		0.67		0.82		17.13 *
First quartile	95.6		90.2		70.5		43.5	
Second quartile	96.5		87.5		66.3		35.2	
Third quartile	98.8		87.5		64.9		37.4	
Fourth quartile	95.1		89.2		65.8		57.8	
Low Response Score[3]		1.23		1.58		2.08		14.27 *
First quartile	97.9		91.4		72.3		40.6	
Second quartile	96.3		85.7		67.1		33.3	
Third quartile	96.5		89.3		64.8		42.3	
Fourth quartile	95.1		88.9		64.1		55.4	
Residential high-speed internet per 1000 households[4]		3.49		3.63		1.17		12.09 *
600 or less	93.1		88.0		64.0		59.3	
601-800	96.5		92.0		65.2		41.6	
801 or more	97.7		86.2		69.6		40.4	

†Not applicable.
#Rounds to zero.
‡Reporting standards not met. There are too few cases for a reliable estimate.
* p<0.05
[1]These characteristics are based on variables available on the NHES:2019 sampling frame.
[2]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[3]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[4]This characteristic is based on tract-level estimates of Internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The agreement rate is the percentage of addresses observed to have the same characteristic as found in the frame. Each analysis in this table is limited to cases that had data available from both sources. Rounded number of eligible cases is 540 for structure type, 410 for occupancy status, 440 for presence of children, and 480 for household income. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from the analysis.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Table D.10. Wald joint significance tests from binomial logistic regression predicting agreement rate between frame and observation variables for nonrespondent households, by independent variables: 2019

Independent variables	Structure type[1]	Occupancy status[2]	Presence of children[3]	Household income[4]
NHES:2019 bilingual screener mailings status	0.86	6.66 *	0.43	2.65
Age of head of household[5]	3.63	†	10.66	6.61
Gender of head of household[5]	2.74	8.69 *	2.69	1.69
Education of head of household[5]	8.91	†	11.73 *	11.53 *
Race of head of household[5]	8.33	†	2.14	5.18
Household income[5]	6.43	†	4.19	†
Whether household flagged as having children[5]	0.00	0.82	†	0.58
Number of adults in household[5]	3.83	†	†	0.73
Whether phone number available[5]	2.07	0.00	0.20	0.28
Route type[5]	†	†	0.05	1.21
Dwelling type[5]	†	6.18 *	2.68	0.77
Home tenure[5]	1.93	0.58	0.36	7.40 *
Urbanicity[5,6]	2.01	3.41	1.92	0.74
Region[5]	12.12 *	3.36	4.21	1.43
Race/ethnicity stratum[7]	0.10	4.52	1.14	1.56
Tract poverty rate[7]	5.49 *	2.17	0.40	4.40 *
Percent of households in Census block that include a child[7]	4.25	10.84 *	7.37	2.16
Percent of persons in Census block that speak a language other than English[7]	2.96	5.45	1.95	0.48
Percent of persons in Census block without a high school diploma or the equivalent[7]	0.19	7.25	3.96	5.43
Low Response Score[8]	2.78	8.44 *	7.21	1.91
Residential high-speed internet per 1000 households[9]	5.31	6.69 *	1.70	1.58

†Not applicable.
*$p < .05$.
[1]The independent variables route type and dwelling type were excluded from this model because they were used to create the dependent variable and were highly correlated with it.
[2]The independent variables age of head of household, education of head of household, race of head of household, household income, number of adults in household and route type were dropped from this model because one or more of the categories perfectly predicted the dependent variable.
[3]The independent variable that flagged some households as having children was excluded from this model because it was used to create the dependent variable and was highly correlated with it. The independent variable number of adults in household was dropped from this model due to multicollinearity.
[4]The independent variable household income was excluded from this model because it was used to create the dependent variable and was highly correlated with it.
[5]These variables are available on the NHES:2019 sampling frame.
[6]This variable originally had four categories (urban, suburban, town, rural), but the town and rural categories had to be collapsed for this analysis due to sample size constraints.
[7] These characteristics are based on American Community Survey (2013-2017) five-year estimates.
[8]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[9]This variable is based on tract-level estimates of Internet penetration provided by the Federal Communications Commission (FCC).
NOTE: Missing values on the independent variables are treated as a separate category. The dependent variable for each model is a binary indicator of whether an address was observed to have the same characteristic as found in the NHES:2019 sampling frame. For each model, addresses that were missing data for either of the variables used to create the dependent variable were excluded from that analysis. Addresses that ended up responding to NHES:2019 and addresses that had at least one undeliverable as addressed (UAA) NHES:2019 mailing were excluded from the analysis. The pseudo R^2 values for the models predicting agreement for structure type, occupancy status, presence of children, and household income are 0.21, 0.53, 0.17, and 0.12, respectively. The rounded sample size is 540 for structure type, 400 for occupancy status, 440 for presence of children, and 480 for household income.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Appendix E. Recruiting Nonrespondents

This appendix provides more information about the effort to recruit the 400 addresses sampled for the interview component of the study. Three modes of recruitment were used—mailed materials, outbound phone calls, and in-person visits. As noted in chapter 2, all households in the interview component sample were sent an invitation letter and two reminder postcards. In addition, two rounds of outbound phone calls were made to the 270 addresses for which a phone number was available on the NHES:2019 sampling frame. Finally, three weeklong waves of in-person recruitment were conducted. Follow-up continued for each address until an interview had been scheduled or conducted or a hard refusal had been received.

Eighty-five interviews were ultimately conducted. Nearly 80 percent of the 85 interviews were recruited through in-person visits, about 15 percent through mailed contacts, and about 5 percent through outbound calls. In the following sections, we provide a summary of the outcomes of the phone and in-person recruitment activities. The mailed recruitment activities are not discussed in detail in this appendix because the main outcome of interest, the undeliverable as addressed (UAA) outcome, was discussed in chapter 7 (see section 7.2).

E.1 Outbound Phone Calls

During each of the two rounds of outbound phone calls, staff aimed to call each address up to two times; about half of the addresses (46 percent) ended up being called four times. The total number of phone calls made to each address ultimately ranged from 1 to 6. About half of the addresses were called less than four times; 9 percent received one call, 34 percent received two calls, and 9 percent received three calls. Addresses were called less than four times if, for example, an interview was conducted or a hard refusal was received prior to the second wave of phone calls. In some cases, phone calls were stopped for an address because information gathered during the initial calls suggested that number was not a good way to reach the sampled address (e.g., the number was not in service or the person that answered indicated that the phone number was not associated with the sampled address). A small number of addresses (2 percent) received 5 or more calls. This occurred, for example, if the address requested additional callbacks at a different time.

Based on these calling efforts, we determined the final call outcome for each address. The final call outcome is based on the best or most informative call outcome. For example, if an address was called three times, and the first two calls were not answered and the last call resulted in a scheduled interview, then the final (and best) outcome is the one from the last call. As another example, if the first two calls went unanswered but the third resulted in a hard refusal, then the final (and most informative) outcome is the hard refusal.

Table E.1 presents the distribution of the final call outcomes. An interview being scheduled was the final call outcome for 1 percent of the called addresses; the phone calls were the successful mode of recruitment for 5 of the conducted interviews. Three of these were scheduled during the outbound calls, and the other two were scheduled as a result of the participants calling the team to schedule an interview. Two additional interview participants also mentioned during the interview that they had received the recruitment calls.

However, the most common final call outcome was for there to be no answer. For about a third of the called addresses, the final call outcome was leaving a voicemail (34 percent). For another third, the final call outcome was no answer (without the possibility of leaving a voicemail message) (34 percent). For a few additional addresses, the final call outcome was a busy signal (3 percent).

Table E.1. Number and percentage distribution of final call outcome for addresses sampled for interview component: 2019

Final call outcome	Number of addresses	Percentage of addresses
Total	**273**	**100.0**
Interview scheduled	3	1.1
Soft refusal	8	2.9
Hard refusal	8	2.9
Hang up during introduction	13	4.8
Voicemail left	92	33.7
No answer, voicemail not possible	93	34.1
Busy signal	8	2.9
Language barrier	1	0.4
Ineligible person	2	0.7
Number not in service	25	9.2
Number not associated with sampled address	16	5.9
Not a household number	3	1.1
Other	1	0.4

NOTE: The final call outcome is the most informative outcome of all calls that were made to an address. Details may not sum to totals because of rounding. Sample sizes have not been rounded.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

For about one in six called addresses, the final call outcome was the determination that the number was either not in service (9 percent) or not associated with the sampled address (6 percent not associated with the sampled address, 1 percent not a household number). For example, in some cases, the person who answered the phone said he or she used to live at the sampled address but no longer did so.

For about one in nine called addresses, the final outcome was a refusal (3 percent hard refusal, 3 percent soft refusal, 5 percent hang up during introduction). These households typically did not provide a specific reason why they did not want to participate in the study. They still received in-person visits due to the possibility that the person who refused did not actually live at the sampled address (e.g., if the number on the sampling frame was not associated with the sampled address). Finally, for about 1 percent of addresses, the final call outcome was either a language barrier or an ineligible household member (e.g., not responsible for checking the mail).

We also conducted a subgroup analysis to determine whether certain final phone outcomes were more or less common for particular subgroups (see table E.2). For this analysis, we collapsed the final phone outcomes into American Association for Public Opinion Research (AAPOR) standard disposition codes: interview scheduled (1 percent); eligible, no interview

scheduled (11 percent); unknown eligibility (72 percent); and ineligible (16 percent).[16] Because very few addresses had an interview scheduled as a result of the calls, there were no subgroups for which this was a very common outcome. There were, however, some patterns in terms of the characteristics of the addresses that ended up having an interview scheduled as a result of the calls—they all had a Black or White head of household who was age 55 or older (or missing age information) and was female (or missing gender information), they were all single-adult households, and they were all owner inhabited. There also were not very many notable subgroup differences in the likelihood of eligible, no interview or ineligible outcomes. However, there were a few subgroups that were somewhat more likely than average to end up with these outcomes. Addresses that were rented (23 percent) and those in the Black oversample stratum (22 percent) were somewhat more likely than average to have an eligible, no interview (refusal) outcome. Addresses with a Black head of household (34 percent), whose head of household had completed some college but did not have a degree (27 percent), and that were missing age information for the head of household (26 percent) were somewhat more likely than average to have an ineligible outcome.

[16] The final phone outcomes were categorized into standard AAPOR disposition codes as follows: (1) *Interview scheduled* includes addresses where the final call outcome was a scheduled interview; (2) *Eligible, non-interview* includes addresses where the final call outcome was a soft or hard refusal, hang up during introduction, or other; (3) *Unknown eligibility* includes addresses where the final call outcome was voicemail left, language barrier, busy signal, no answer/voicemail not possible, and ineligible persons; and (4) *Ineligible* includes addresses where the final call outcome was number not in service, number not associated with sampled address, and not a household number.

Table E.2. Number of addresses and percentage distribution of final call outcome for addresses sampled for interview component, by selected characteristics: 2019

Selected characteristics	Number of addresses	Final call outcome: Interview scheduled	Eligible, no interview scheduled	Unknown eligibility	Ineligible
Total	**273**	**1.1**	**11.0**	**71.8**	**16.1**
Age of head of household[1]					
18–34	23	0.0	8.7	69.6	21.7
35–44	43	0.0	7.0	79.1	14.0
45–54	49	0.0	18.4	69.4	12.2
55–64	52	1.9	1.9	80.8	15.4
65 and older	41	2.4	19.5	73.2	4.9
Missing	65	1.5	10.8	61.5	26.2
Gender of head of household[1]					
Male	86	0.0	10.5	79.1	10.5
Female	91	1.1	12.1	70.3	16.5
Missing	96	2.1	10.4	66.7	20.8
Education of head of household[1]					
Less than high school credential	79	1.3	12.7	69.6	16.5
High school credential	54	1.9	14.8	74.1	9.3
Some college	51	0.0	9.8	62.8	27.5
Bachelor's degree	40	2.5	12.5	82.5	2.5
Graduate degree	15	0.0	0.0	80.0	20.0
Missing	34	0.0	5.9	70.6	23.5
Race of head of household[1]					
White, non-Hispanic	110	1.8	8.2	79.1	10.9
Black, non-Hispanic	35	2.9	14.3	48.6	34.3
Hispanic	75	0.0	14.7	72.0	13.3
Other race, non-Hispanic	17	0.0	11.8	76.5	11.8
Missing	36	0.0	8.3	69.4	22.2
Household income[1]					
Less than $50,000	119	0.8	16.8	66.4	16.0
$50,000–$74,999	38	0.0	10.5	86.8	2.6
$75,000–$99,999	33	0.0	0.0	78.8	21.2
$100,000 or higher	71	2.8	7.0	69.0	21.1
Missing	12	0.0	8.3	75.0	16.7

See notes at end of table.

Table E.2. Number of addresses and percentage distribution of final call outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final call outcome: Interview scheduled	Eligible, no interview scheduled	Unknown eligibility	Ineligible
Household flagged as having children[1]					
Yes	100	1.0	7.0	78.0	14.0
No	173	1.2	13.3	68.2	17.3
Number of adults in household[1]					
1 adult	150	2.0	12.0	68.0	18.0
2 adults	79	0.0	12.7	73.4	13.9
3 adults or more	32	0.0	3.1	84.4	12.5
Missing	12	0.0	8.3	75.0	16.7
Route type[1]					
Street	213	0.9	8.5	75.6	15.0
High rise	60	1.7	20.0	58.3	20.0
Dwelling type[1]					
Single-unit	209	1.0	8.6	77.0	13.4
Multi-unit	64	1.6	18.8	54.7	25.0
Home tenure[1]					
Own	163	1.8	4.9	80.4	12.9
Rent	90	0.0	23.3	54.4	22.2
Missing	20	0.0	5.0	80.0	15.0
Urbanicity[1]					
Urban	99	2.0	10.1	68.7	19.2
Suburban	161	0.6	12.4	72.7	14.3
Town	2	0.0	0.0	100.0	0.0
Rural	11	0.0	0.0	81.8	18.2
Region[1]					
Northeast	75	0.0	13.3	69.3	17.3
South	60	1.7	6.7	73.3	18.3
Midwest	70	2.9	8.6	72.9	15.7
West	68	0.0	14.7	72.1	13.2

See notes at end of table.

Table E.2. Number of addresses and percentage distribution of final call outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final call outcome: Interview scheduled	Eligible, no interview scheduled	Unknown eligibility	Ineligible
Race/ethnicity stratum[2]					
25% or more Black	41	2.4	22.0	53.7	22.0
40% or more Hispanic	85	0.0	11.8	75.3	12.9
Other	147	1.4	7.5	74.8	16.3
Tract poverty rate[2]					
Less than 20%	176	1.1	9.7	75.6	13.6
20% or more	97	1.0	13.4	65.0	20.6
Percent of households in Census block that include a child[2]					
First quartile	59	3.4	11.9	59.3	25.4
Second quartile	67	0.0	13.4	76.1	10.5
Third quartile	54	1.9	5.6	83.3	9.3
Fourth quartile	93	0.0	11.8	69.9	18.3
Percent of persons in Census block that speak a language other than English[2]					
First quartile	29	3.5	3.5	75.9	17.2
Second quartile	58	0.0	12.1	70.7	17.2
Third quartile	72	2.8	12.5	72.2	12.5
Fourth quartile	114	0.0	11.4	71.1	17.5
Percent of persons in Census block without a high school diploma or the equivalent[2]					
First quartile	62	1.6	4.8	80.7	12.9
Second quartile	59	1.7	11.9	62.7	23.7
Third quartile	56	1.8	14.3	69.6	14.3
Fourth quartile	96	0.0	12.5	72.9	14.6
Low Response Score[3]					
First quartile	65	0.0	4.6	80.0	15.4
Second quartile	55	3.6	10.9	67.3	18.2
Third quartile	58	1.7	6.9	79.3	12.1
Fourth quartile	95	0.0	17.9	64.2	17.9

See notes at end of table.

Table E.2. Number of addresses and percentage distribution of final call outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final call outcome: Interview scheduled	Eligible, no interview scheduled	Unknown eligibility	Ineligible
Residential high-speed internet per 1000 households[4]					
600 or less	73	1.4	13.7	63.0	21.9
601-800	101	1.0	12.9	73.3	12.9
801 or more	99	1.0	7.1	76.8	15.2

[1]These characteristics are based on variables available on the NHES:2019 sampling frame.
[2]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[3]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[4]This characteristic is based on tract-level estimates of internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The final call outcome for each case was categorized into American Association for Public Opinion Research (AAPOR) standard disposition outcomes. The categorization was conducted as follows: (1) *Interview scheduled* includes cases where the recruitment call resulted in a scheduled interview. (2) *Eligible, non-interview* includes cases where there was a soft or hard refusal, hang up during introduction, or "other" outcome. (3) *Unknown eligibility* includes voicemail left, language barrier, busy signal, no answer/voicemail not possible, and ineligible person. (4) *Ineligible* includes number not in service, number not associated with sampled address, and not a household number. Details may not sum to totals because of rounding. Sample sizes have not been rounded.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

E.2 In-Person Visits

Field staff made three weeklong in-person recruitment trips to each site. Almost all (98 percent) of the 400 addresses sampled for the interview component of the study were visited at least once. Addresses were visited up to five times; more specifically, about a third were visited once (34 percent); just under two-fifths were visited twice (38 percent); and just over a quarter were visited three or more times (19 percent were visited three times and 7 percent were visited 4 or more times). The remaining 2 percent were not visited either because the household had already refused participation in response to the earlier contacts or because the results of the observation component of the study had indicated it was impossible to reach the address or the address was vacant.

Table E.3 presents the distribution of the final in-person visit outcome resulting from these visits. Similar to the final call outcome, the final visit outcome is the best or most informative outcome across all the visits made to a household. Catching people at home presented one of the biggest challenges for recruitment. One of the most common final visit outcomes was not finding people at home during the visits (22 percent). When interview staff did not find anyone at home, they left a *Sorry We Missed You* card. Interviewers mentioned that a few interview participants later noted that incorporating a "human element" into the cards (such as leaving a handwritten note or personal phone number on the card or leaving a personal business card with the card) had made them more open to completing the interview.

Table E.3. Number and percentage distribution of final in-person visit outcome for addresses sampled for interview component: 2019

Final in-person visit outcome	Number of addresses	Percentage of addresses
Total	**400**	**100.0**
Interview completed	85	21.3
Short interview completed	6	1.5
Soft refusal	38	9.5
Hard refusal	67	16.8
No answer (evidence someone is home)	19	4.8
No answer (no evidence someone is home)	89	22.3
Physical or mental disability	2	0.5
Language barrier	11	2.8
Unable to reach household or unsafe	38	9.5
Ineligible person	24	6.0
Ineligible household	2	0.5
Vacant or non-existent unit[1]	10	2.5
Not visited due to prior recruitment or observation outcome[2]	8	2.0
Other	1	0.3

[1] These addresses were not determined to be vacant during the observations but were determined to be vacant during the in-person recruitment visits. It is possible the address's vacancy status changed between the observation and the in-person visit. It is also possible that the field staff received new information during the in-person visit that had not been available during the observation (e.g., gaining entry to a multi-unit building that had been restricted during the observation).
[2] These addresses did not receive in-person recruitment visits because they were determined to be vacant, were unable to be reached, or had provided a hard refusal before the in-person recruitment period (either as part of the address observations or in response to the mail-based interview recruitment).
NOTE: The final visit outcome is the most informative outcome of all visits that were made to an address. Details may not sum to totals because of rounding. Sample sizes have not been rounded.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Making repeated visits to the addresses helped to ensure contact with someone at the selected address for many of the other addresses. In general, the best times to reach sample members at home varied somewhat across sites —while at one site weekends seemed to be when more people were home, at the other three sites, weeknight evenings were the most successful time to find people home. For 85 addresses (21 percent), the final in-person outcome was that an interview was completed; for another 2 percent, it was that a short interview was completed. For about a third of the addresses, the person who was reached declined to participate, whether actively or passively; about 17 percent of addresses resulted in a hard refusal, about 10 percent in a soft refusal, and about 5 percent did not answer the door even though it was clear that someone was home. For about 9 percent of the addresses, the person who was reached was unable to participate in the interview because of a language barrier (3 percent), a physical or mental disability (1 percent), or because the person did not meet the eligibility requirements (6 percent).

When finding household members at home, two types of reasons for refusal were commonly provided. First, several household members simply stated they did not want to participate or were not interested—and made it clear that their opinion was not going to change (e.g., asking the team not to come back, closing the door while the team was talking). Second, several household members indicated that they were too busy to participate (e.g., taking care of small children; heading out soon for an appointment, work, or school pickup). In some cases, these household members expressed openness to participating later, but in others, they said they were too busy to schedule for a later date.

In a smaller number of cases, doorstep conversations were a critical factor in convincing household members to participate in the interview. Interviewers noted that, in a few cases, mentioning the Department of Education increased household members' openness to or interest in participating in the study; this seemed to resonate more than mentioning the National Household Education Survey or the National Center for Education Statistics. In a few cases, when interviewers mentioned they were visiting "from out of town," this seemed to cause household members to become less interested in participating. In addition, across all sites, interviewers encountered sample members and neighbors who were suspicious of them or were concerned about the interview request being a scam. Some households watched the team approach and reviewed the badges they were wearing to verify their identity. Even when the household members did not think the interview was a scam, some of them were concerned with "the government" coming to their address and collecting information about them. Such fears included concerns that the interview staff were part of Child Protective Services or Immigration Services. In a few cases, household members refused to participate in the interview because they were upset about having seen the team members in the neighborhood before, while making previous recruitment visits or working on the household observation.

Even when addresses were visited repeatedly, it was impossible to reach about 10 percent of the households because they were inaccessible (e.g., because of gatekeepers or locked buildings) or unsafe to reach (e.g., because of guard dogs). Finally, for about 3 percent of addresses, the final in-person visit outcome suggested ineligibility to participate in an interview —either because none of the household members met the interview eligibility

requirements (e.g., they had only just moved to the address) (1 percent) or because the address appeared to be vacant or non-existent (3 percent).

We also conducted a subgroup analysis to determine whether certain final in-person visit outcomes were more or less common for particular subgroups (see table E.4). For this analysis, we again collapsed the final outcomes into AAPOR standard disposition codes: interview conducted (21 percent); eligible, no interview scheduled (33 percent); unknown eligibility (41 percent); and ineligible (5 percent).[17] Addresses in the Black oversample stratum were somewhat more likely than average to have an interviewed-conducted outcome (36 percent). Addresses where the head of household's educational attainment was high school and those in rural areas were more likely than average to have an eligible, no interview scheduled (refusal) outcome (44 percent and 50 percent, respectively). Interestingly, addresses whose Census Low Response Score was in the lowest quartile (i.e., expected to be the most responsive) were more likely to have an eligible, no interview scheduled outcome than cases whose score was in the highest quartile (i.e., expected to be the least responsive) (45 percent versus 27 percent). Addresses that were missing frame information were more likely than average to have an unknown eligibility outcome (e.g., 57 percent of addresses missing information about the number of adults in the household). Although the ineligible outcome tended to be uncommon for most subgroups, there were a few subgroups where it occurred more often than average: those where home tenure was missing (14 percent) and those with the lowest percentage of persons in the Census block that speak a language other than English (12 percent).

[17] The final in-person visit outcomes were categorized into standard AAPOR disposition codes as follows: (1) *Interview conducted* includes addresses where the final visit outcome was a completed interview; (2) *Eligible, non-interview* includes addresses where the final visit outcome was short interview completed, no answer (evidence someone is home), soft refusal, hard refusal, or other; (3) *Unknown eligibility* includes addresses where the final visit outcome was physical or mental disability, language barrier, unable to reach household or unsafe, no answer (no evidence someone is one home), or ineligible person; and (4) *Ineligible* includes addresses where the final visit outcome was ineligible household, vacant or non-existent unit, or addresses not visited due to observation outcome.

Table E.4. Number of addresses and percentage distribution of final visit outcome for addresses sampled for interview component, by selected characteristics: 2019

Selected characteristics	Number of addresses	Final visit outcome			
		Interview conducted	Eligible non-interview	Unknown eligibility	Ineligible
Total	**400**	**21.3**	**32.8**	**41.0**	**5.0**
Age of head of household[1]					
18–34	38	21.1	31.6	44.7	2.6
35–44	63	27.0	31.8	39.7	1.6
45–54	59	18.6	42.4	37.3	1.7
55–64	61	26.2	32.8	32.8	8.2
65 and older	54	18.5	37.0	37.0	7.4
Missing	125	18.4	27.2	48.0	6.4
Gender of head of household[1]					
Male	129	20.9	30.2	43.4	5.4
Female	125	20.8	36.8	38.4	4.0
Missing	146	21.9	31.5	41.1	5.5
Education of head of household[1]					
Less than high school credential	120	23.3	29.2	40.8	6.7
High school credential	71	25.4	43.7	25.4	5.6
Some college	71	25.4	31.0	42.3	1.4
Bachelor's degree	50	18.0	34.0	44.0	4.0
Graduate degree	22	22.7	36.4	40.9	0.0
Missing	66	10.6	27.3	54.6	7.6
Race of head of household[1]					
White, non-Hispanic	145	22.8	36.6	36.6	4.1
Black, non-Hispanic	55	29.1	21.8	41.8	7.3
Hispanic	105	21.0	39.1	35.2	4.8
Other race, non-Hispanic	25	20.0	24.0	52.0	4.0
Missing	70	12.9	27.1	54.3	5.7

See notes at end of table.

Table E.4. Number of addresses and percentage distribution of final visit outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final visit outcome			
		Interview conducted	Eligible non-interview	Unknown eligibility	Ineligible
Household income[1]					
Less than $50,000	192	21.9	28.1	44.3	5.7
$50,000–$74,999	46	26.1	32.6	34.8	6.5
$75,000–$99,999	42	26.2	42.9	31.0	0.0
$100,000 or higher	85	17.7	42.4	35.3	4.7
Missing	35	14.3	22.9	57.1	5.7
Household flagged as having children[1]					
Yes	120	21.7	31.7	42.5	4.2
No	280	21.1	33.2	40.4	5.4
Number of adults in household[1]					
1 adult	233	22.8	30.5	41.2	5.6
2 adults	99	17.2	39.4	39.4	4.0
3 adults or more	33	30.3	39.4	27.3	3.0
Missing	35	14.3	22.9	57.1	5.7
Phone number available[1]					
Yes	273	24.2	34.4	37.4	4.0
No	127	15.0	29.1	48.8	7.1
Route type[1]					
Street	274	20.4	36.9	37.2	5.5
High rise	126	23.0	23.8	49.2	4.0
Dwelling type[1]					
Single-unit	259	20.9	37.5	36.3	5.4
Multi-unit	141	22.0	24.1	49.7	4.3
Home tenure[1]					
Own	200	18.5	41.5	37.5	2.5
Rent	149	28.2	25.5	40.9	5.4
Missing	51	11.8	19.6	54.9	13.7

See notes at end of table.

Table E.4. Number of addresses and percentage distribution of final visit outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final visit outcome			
		Interview conducted	Eligible non-interview	Unknown eligibility	Ineligible
Urbanicity[1]					
Urban	165	24.2	29.1	42.4	4.2
Suburban	216	20.4	34.7	38.9	6.0
Town	3	0.0	0.0	100.0	0.0
Rural	16	6.3	50.0	43.8	0.0
Region[1]					
Northeast	100	20.0	37.0	37.0	6.0
South	100	23.0	34.0	40.0	3.0
Midwest	100	28.0	21.0	45.0	6.0
West	100	14.0	39.0	42.0	5.0
Race/ethnicity stratum[2]					
25% or more Black	73	35.6	15.1	41.1	8.2
40% or more Hispanic	127	19.7	37.8	40.2	2.4
Other	200	17.0	36.0	41.5	5.5
Tract poverty rate[2]					
Less than 20%	248	18.2	38.3	37.9	5.7
20% or more	152	26.3	23.7	46.1	4.0
Percent of households in Census block that include a child[2]					
First quartile	93	19.4	35.5	41.9	3.2
Second quartile	87	26.4	36.8	35.6	1.2
Third quartile	99	15.2	30.3	43.4	11.1
Fourth quartile	121	24.0	29.8	42.2	4.1
Percent of persons in Census block that speak a language other than English[2]					
First quartile	41	29.3	24.4	34.2	12.2
Second quartile	78	21.8	25.6	51.3	1.3
Third quartile	107	19.6	40.2	34.6	5.6
Fourth quartile	174	20.1	33.3	42.0	4.6

See notes at end of table.

Table E.4. Number of addresses and percentage distribution of final visit outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final visit outcome: Interview conducted	Eligible non-interview	Unknown eligibility	Ineligible
Percent of persons in Census block without a high school diploma or the equivalent[2]					
First quartile	82	14.6	36.6	43.9	4.9
Second quartile	78	20.5	29.5	43.6	6.4
Third quartile	81	22.2	35.8	38.3	3.7
Fourth quartile	159	24.5	30.8	39.6	5.0
Low Response Score[3]					
First quartile	86	15.1	45.4	33.7	5.8
Second quartile	70	15.7	34.3	45.7	4.3
Third quartile	78	30.8	29.5	35.9	3.9
Fourth quartile	165	22.4	27.3	44.9	5.5
Residential high-speed internet per 1000 households[4]					
600 or less	116	25.9	24.1	45.7	4.3
601-800	150	21.3	34.7	38.0	6.0
801 or more	134	17.2	38.1	40.3	4.5

[1]These characteristics are based on variables available on the NHES:2019 sampling frame.
[2]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[3]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[4]This characteristic is based on tract-level estimates of internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The final visit outcome for each case was categorized into American Association for Public Opinion Research (AAPOR) standard disposition outcomes. The categorization was conducted as follows: (1) *Interview conducted* includes cases where the visit resulted in a completed interview. (2) *Eligible, non-interview* includes short interview completed, no answer (evidence someone is home), soft refusal, hard refusal, and other. (3) *Unknown eligibility* includes physical or mental disability, language barrier, unable to reach household or unsafe, no one home, and ineligible person. (4) *Ineligible* includes ineligible household, vacant or non-existent unit, and addresses not visited due to observation outcome. Details may not sum to totals because of rounding. Sample sizes have not been rounded.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

E.3 Help Desk

A help desk phone number and email address were provided in the mailings and the *Sorry We Missed You* cards that were left at addresses. When outbound calls were made to addresses and a voicemail was left, the help desk phone number was also included in the voicemail message. Thirty inbound calls and three e-mails were received by the help desk as a result. The recruitment mailings were the communication mode that resulted in the largest number of calls (19 out of 30) to the help desk. When calling or e-mailing the helpdesk, most household members were trying to schedule an interview or confirm that they were eligible to participate in the study. They tended to note that they were responding to the "Department of Education" communication they had received. A very small number of calls were to indicate that the sampled address was not interested in participating in the study.

E.4 Final Study Outcomes

Based on the combined outcomes across all recruitment activities —that is mail, outbound calls, and in-person visits, and help desk contacts —each household was assigned a final study outcome based on the best or most informative outcome. For example, if an address called the help desk in response to one of the mailings to ask that it not be visited, then the final study outcome is a refusal. Or if the outbound calls were not answered but the in-person visits resulted in a language barrier, then the final study outcome is language barrier. Table E.5 shows the distribution of the final study outcomes. The distribution closely resembles the distribution of the final in-person visit outcome (since, for most cases, that was the most informative recruitment activity). For example, for about a fifth of the sample (21 percent), the final study outcome was a completed interview. For about a third (31 percent), it was a refusal. For about a quarter (24 percent), there was no answer (e.g., the interviewer knocked on the door or rang the doorbell, but no one answered), and for about 10 percent, the address could not be reached due to access controls or safety issues.

Similar to the categorization for the outbound phone and visit outcomes, each of the final outcomes was also grouped into AAPOR's standard disposition codes.[18] Subgroup analysis indicated similar patterns as those seen for the phone and visit outcome analyses (see table E.6). For example, addresses in the Black oversample stratum were more likely than average to participate in an interview (36 percent) and less likely to have an eligible, no interview final study outcome (16 percent). Rural addresses were less likely than average to participate in an interview (6 percent) and more likely to have an eligible, no interview study outcome (44 percent). Addresses that were missing frame information were more likely than average to have an unknown eligibility final study outcome; for example, 60 percent of addresses that were missing household income information had this outcome.

[18] The final study outcomes were categorized into standard AAPOR disposition codes as follows: (1) *Interview conducted* includes cases where the visit resulted in a completed interview. (2) *Eligible, non-interview* includes short interview completed, soft refusal, and hard refusal. (3) *Unknown eligibility* includes physical or mental disability, language barrier, unable to reach household or unsafe, no one home, and ineligible person and (4) *Ineligible* includes ineligible household and vacant or non-existent units.

Table E.5. Number and percentage distribution of final study outcome for addresses sampled for interview component: 2019

Final study outcome	Number of addresses	Percentage of addresses
Total	**400**	**100.0**
Interview completed	85	21.3
Short interview completed	6	1.5
Soft refusal	47	11.8
Hard refusal	75	18.8
Physical or mental disability	2	0.5
Language barrier	10	2.5
Unable to reach household or unsafe	40	10.0
No answer	97	24.3
Ineligible person	22	5.5
Ineligible household	2	0.5
Vacant or non-existent unit	14	3.5

NOTE: The final study outcome is the final disposition status assigned to a case based the combined outcomes of all recruitment efforts, including in-person visits. Details may not sum to totals because of rounding. Sample sizes have not been rounded.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019.

Table E.6. Number of addresses and percentage distribution of final study outcome for addresses sampled for interview component, by selected characteristics: 2019

Selected characteristics	Number of addresses	Final study outcome: Interview conducted	Eligible non-interview	Unknown eligibility	Ineligible
Total	**400**	**21.3**	**32.0**	**42.8**	**4.0**
Age of head of household[1]					
18–34	38	21.1	34.2	42.1	2.6
35–44	63	27.0	28.6	42.9	1.6
45–54	59	18.6	47.5	32.2	1.7
55–64	61	26.2	31.2	37.7	4.9
65 and older	54	18.5	35.2	42.6	3.7
Missing	125	18.4	24.8	50.4	6.4
Gender of head of household[1]					
Male	129	20.9	31.0	43.4	4.7
Female	125	20.8	38.4	37.6	3.2
Missing	146	21.9	27.4	46.6	4.1
Education of head of household[1]					
Less than high school credential	120	23.3	26.7	44.2	5.8
High school credential	71	25.4	38.0	32.4	4.2
Some college	71	25.4	32.4	40.9	1.4
Bachelor's degree	50	18.0	42.0	38.0	2.0
Graduate degree	22	22.7	36.4	40.9	0.0
Missing	66	10.6	25.8	57.6	6.1
Race of head of household[1]					
White, non-Hispanic	145	22.8	36.6	37.9	2.8
Black, non-Hispanic	55	29.1	21.8	43.6	5.5
Hispanic	105	21.0	35.2	39.1	4.8
Other race, non-Hispanic	25	20.0	28.0	48.0	4.0
Missing	70	12.9	27.1	55.7	4.3

See notes at end of table.

Table E.6. Number of addresses and percentage distribution of final study outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final study outcome			
		Interview conducted	Eligible non-interview	Unknown eligibility	Ineligible
Household income[1]					
Less than $50,000	192	21.9	28.7	44.8	4.7
$50,000–$74,999	46	26.1	37.0	32.6	4.4
$75,000–$99,999	42	26.2	35.7	38.1	0.0
$100,000 or higher	85	17.7	40.0	38.8	3.5
Missing	35	14.3	20.0	60.0	5.7
Household flagged as having children[1]					
Yes	120	21.7	32.5	43.3	2.5
No	280	21.1	31.8	42.5	4.6
Number of adults in household[1]					
1 adult	233	22.8	29.2	43.4	4.7
2 adults	99	17.2	39.4	40.4	3.0
3 adults or more	33	30.3	42.4	27.3	0.0
Missing	35	14.3	20.0	60.0	5.7
Phone number available[1]					
Yes	273	24.2	35.9	36.6	3.3
No	127	15.0	23.6	55.9	5.5
Route type[1]					
Street	274	20.4	35.4	39.4	4.7
High rise	126	23.0	24.6	50.0	2.4
Dwelling type[1]					
Single-unit	259	20.9	36.3	38.2	4.6
Multi-unit	141	22.0	24.1	51.1	2.8
Home tenure[1]					
Own	200	18.5	38.5	41.5	1.5
Rent	149	28.2	28.2	38.9	4.7
Missing	51	11.8	17.7	58.8	11.8

See notes at end of table.

Table E.6. Number of addresses and percentage distribution of final study outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final study outcome: Interview conducted	Eligible non-interview	Unknown eligibility	Ineligible
Urbanicity[1]					
Urban	165	24.2	26.7	44.9	4.2
Suburban	216	20.4	35.7	39.8	4.2
Town	3	0.0	0.0	100.0	0.0
Rural	16	6.3	43.8	50.0	0.0
Region[1]					
Northeast	100	20.0	39.0	36.0	5.0
South	100	23.0	33.0	41.0	3.0
Midwest	100	28.0	20.0	49.0	3.0
West	100	14.0	36.0	45.0	5.0
Race/ethnicity stratum[2]					
25% or more Black	73	35.6	16.4	42.5	5.5
40% or more Hispanic	127	19.7	35.4	42.5	2.4
Other	200	17.0	35.5	43.0	4.5
Tract poverty rate[2]					
Less than 20%	248	18.2	37.1	40.7	4.0
20% or more	152	26.3	23.7	46.1	4.0
Percent of households in Census block that include a child[2]					
First quartile	93	19.4	33.3	46.2	1.1
Second quartile	87	26.4	39.1	33.3	1.2
Third quartile	99	15.2	26.3	48.5	10.1
Fourth quartile	121	24.0	30.6	42.2	3.3
Percent of persons in Census block that speak a language other than English[2]					
First quartile	41	29.3	22.0	41.5	7.3
Second quartile	78	21.8	25.6	52.6	0.0
Third quartile	107	19.6	40.2	35.5	4.7
Fourth quartile	174	20.1	32.2	43.1	4.6

See notes at end of table.

Table E.6. Number of addresses and percentage distribution of final study outcome for addresses sampled for interview component, by selected characteristics: 2019—Continued

Selected characteristics	Number of addresses	Final study outcome: Interview conducted	Eligible non-interview	Unknown eligibility	Ineligible
Percent of persons in Census block without a high school diploma or the equivalent[2]					
First quartile	82	14.6	34.2	47.6	3.7
Second quartile	78	20.5	30.8	44.9	3.9
Third quartile	81	22.2	38.3	37.0	2.5
Fourth quartile	159	24.5	28.3	42.1	5.0
Low Response Score[3]					
First quartile	86	15.1	41.9	39.5	3.5
Second quartile	70	15.7	34.3	47.1	2.9
Third quartile	78	30.8	29.5	35.9	3.9
Fourth quartile	165	22.4	27.3	45.5	4.9
Residential high-speed internet per 1000 households[4]					
600 or less	116	25.9	23.3	46.6	4.3
601-800	150	21.3	35.3	40.0	3.3
801 or more	134	17.2	35.8	42.5	4.5

[1]These characteristics are based on variables available on the NHES:2019 sampling frame.
[2]These characteristics are based on American Community Survey (2013-2017) five-year estimates. Cases in the first quartile were those with the lowest prevalence of the characteristic in question and those that are in the fourth quartile are those with the highest prevalence.
[3]The Low Response Score is a derived variable that identifies block groups with characteristics associated with low mail return rates to the 2010 Decennial Census. A higher score corresponds to a lower expected mail return rate. This variable was not available for a very small number of cases, and these cases have been excluded from this analysis.
[4]This characteristic is based on tract-level estimates of internet penetration provided by the Federal Communications Commission (FCC).
NOTE: The final study outcome for each case was categorized into American Association for Public Opinion Research (AAPOR) standard disposition outcomes. The categorization was conducted as follows: (1) *Interview conducted* includes cases where the visit resulted in a completed interview. (2) *Eligible, non-interview* includes short interview completed, soft refusal, and hard refusal. (3) *Unknown eligibility* includes physical or mental disability, language barrier, unable to reach household or unsafe, no one home, and ineligible person. (4) *Ineligible* includes ineligible household and vacant or non-existent units. Details may not sum to totals because of rounding. Sample sizes have not been rounded.
SOURCE: U.S. Department of Education, National Center for Education Statistics, National Household Education Surveys Program (NHES), 2019; U.S. Department of Commerce, American Community Survey (ACS), 2013-2017 and Decennial Census, 2010; and Federal Communications Commission (FCC), 2017.

Appendix F. NHES:2019 Materials

Advance letter

NHES-10L(MW)
(06-2018)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

I am pleased to inform you that your household has been selected to participate in an important national survey on the education of people in the United States, the 2019 National Household Education Survey. The U.S. Census Bureau, on behalf of the U.S. Department of Education, conducts this survey of households every few years to gather information about learning activities that happen outside of schools.

What to expect next:

- In a few days you will receive an invitation in the mail from us to complete the survey.
- The survey can be completed at home by any adult in the household.
- Depending on your answers, it takes about 3 to 30 minutes to complete.
- We include $5 as a token of our appreciation for your participation in this study. Please look for it in your next mailing from us!

If you would like more information on the study, please visit nces.ed.gov/nhes or contact us toll-free at 1–888–840–8353.

Thank you in advance for your help with this important study.

Sincerely,

Ron S. Jarmin
Performing the Non-Exclusive Functions
and Duties of the Director, U.S. Census Bureau

Authorization and Confidentiality of Information

The National Center for Education Statistics (NCES), within the U.S. Department of Education, is authorized to conduct the National Household Education Survey (NHES) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §9543). The U.S. Census Bureau is administering this voluntary survey on behalf of NCES. There are no penalties should you choose not to participate in this study. All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151).

NHES-11L(W)
(06-2018)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

Last week, the U.S. Census Bureau sent a letter to your household about the 2019 National Household Education Survey. Please complete this survey online as soon as possible using the instructions below.

Follow these three easy steps:

1. Go to: **https://respond.census.gov/nhes**
2. Enter your User ID:
3. Click "Begin survey" to participate in the survey.

We know that you are busy, and we have enclosed a $5 token of our appreciation for your time.

We understand that not all households have Internet access. **If you want the survey in another format, have questions, or need assistance, please contact the U.S. Census Bureau toll-free at 1–888–840–8353.** You can find more information online at https://nces.ed.gov/nhes/.

Thank you for your participation in this valuable national survey. We look forward to your response.

Sincerely,

Ron S. Jarmin
Performing the Non-Exclusive Functions
and Duties of the Director, U.S. Census Bureau

Enclosures

Authorization and Confidentiality of Information

The National Center for Education Statistics (NCES), within the U.S. Department of Education, is authorized to conduct the National Household Education Survey (NHES) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §9543). The U.S. Census Bureau is administering this voluntary survey on behalf of NCES. There are no penalties should you choose not to participate in this study. All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151).

Pressure-sealed envelope

0939-12P(W)
(06-2018)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

Recently we mailed you a letter asking you to participate in the 2019 National Household Education Survey. If you or someone in your household has already completed the survey, we thank you very much for your help! If you have not completed your survey, please do so right away.

Follow these steps to finish the survey online:

1. Go to: **https://respond.census.gov/nhes**
2. Enter your User ID:
3. Click "Begin survey" to participate in the survey.

If you have questions, feel free to contact us toll-free at 1–888–840–8353.

Sincerely,

Ron S. Jarmin
Performing the Non-Exclusive Functions
and Duties of the Director, U.S. Census Bureau

Authorization and Confidentiality of Information

The National Center for Education Statistics (NCES), within the U.S. Department of Education, is authorized to conduct the National Household Education Survey (NHES) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §9543). The U.S. Census Bureau is administering this voluntary survey on behalf of NCES. There are no penalties should you choose not to participate in this study. All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151).

United States™ Census Bureau

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U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
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Jeffersonville IN 47132-0001

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OFFICIAL BUSINESS
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0939-12P(W) (06-2018)

United States™ Census Bureau

NHES-12L(SM)
(08-2018)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

We have mailed this survey using rush delivery because of the importance of your response. We have not yet received your completed survey for the 2019 National Household Education Survey. Did you know?

- From 2005 to 2016, the cost of child care from a day care center, Head Start program, or preschool rose from an average of $5.29 to $7.60 per hour.
- From 2012 to 2016, the percentage of parents who reported that the amount of homework their child was assigned was “about right” declined from 77% to 75%.

These are just some of the statistics that we learn from the National Household Education Survey.

Topics include:

Early childhood care and education | Parent and family involvement in education | Homeschooling

Now, we need your help to update this important information. Follow these steps to complete the survey:

1. Go to: **https://respond.census.gov/nhes**
2. Enter your User ID:
3. Click "Begin survey" to participate in the survey.

If you have questions or need assistance, please contact us toll-free at 1–888–840–8353. You can find more information online at https://nces.ed.gov/nhes/.

Thank you for taking part in this important study.

Sincerely,

Ron S. Jarmin
Performing the Non-Exclusive Functions
and Duties of the Director, U.S. Census Bureau

Authorization and Confidentiality of Information

The National Center for Education Statistics (NCES), within the U.S. Department of Education, is authorized to conduct the National Household Education Survey (NHES) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §9543). The U.S. Census Bureau is administering this voluntary survey on behalf of NCES. There are no penalties should you choose not to participate in this study. All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151).

NHES-12L(W)
(08-2018)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

Did you know?

- From 2005 to 2016, the cost of child care from a day care center, Head Start program, or preschool rose from an average of $5.29 to $7.60 per hour.
- From 2012 to 2016, the percentage of parents who reported that the amount of homework their child was assigned was “about right” declined from 77% to 75%.

These are just some of the statistics that we learn from the National Household Education Survey.

Topics include:

Early childhood care and education | Parent and family involvement in education | Homeschooling

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NHES-13L(SM)
(06-2018)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

We have not yet received your completed survey for the 2019 National Household Education Survey.

Please fill out the enclosed survey and return it in the postage-paid envelope as soon as possible.

Did you know?
All households that were selected for the survey that do not respond harm the accuracy of the study's findings. Whether your household is large or small, has children or not, your response is needed to provide the best possible data about education in America.

Call us toll-free at 1–888–840–8353 with any questions or to complete the survey with an interviewer. If there are no children in your household, this call will take 5 minutes or less.

Thank you for taking part in this important study.

Sincerely,

Ron S. Jarmin
Performing the Non-Exclusive Functions
and Duties of the Director, U.S. Census Bureau

Enclosures

Authorization and Confidentiality of Information

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NHES-14L(M)
(06-2018)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

The last mailing we sent you was sent by rush delivery because of the importance of YOUR household's response to the 2019 National Household Education Survey.

It will take 3 minutes or less to complete the survey.

If you have any questions or would like to complete the survey with an interviewer, please call us toll-free at 1–888–840–8353. Please respond within the next TWO WEEKS.

You can find more information about this study online at nces.ed.gov/nhes.

Thank you for taking part in this important study.

Sincerely,

Ron S. Jarmin
Performing the Non-Exclusive Functions
and Duties of the Director, U.S. Census Bureau

Enclosures

Authorization and Confidentiality of Information

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NHES-14L(SM)
(06-2018)

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau
Washington, DC 20233-0001
OFFICE OF THE DIRECTOR

We have mailed this survey using rush delivery because of the importance of your response to the 2019 National Household Education Survey.

It may take 3 minutes or less to complete the survey.

If you have any questions or would like to complete the survey with an interviewer please give us a call toll-free at 1–888–840–8353. Please respond within the next TWO WEEKS.

You can find more information about this study online at nces.ed.gov/nhes.

Thank you for taking part in this important study.

Sincerely,

Ron S. Jarmin
Performing the Non-Exclusive Functions
and Duties of the Director, U.S. Census Bureau

Enclosures

Authorization and Confidentiality of Information

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Envelope for advance letter, initial screener package, and second screener package (First-Class Mail version)

US DEPARTMENT OF COMMERCE
Economics and Statistics Administration
US Census Bureau
1201 E 10th Street
Jeffersonville IN 47132-0001
OFFICIAL BUSINESS
Penalty for Private Use $300
BC-1328(0977) (3-2018)

AN EQUAL OPPORTUNITY EMPLOYER

PRESORTED
FIRST-CLASS MAIL
POSTAGE & FEES PAID
U.S. Census Bureau
Permit No. G-58

United States™ Census Bureau

Envelope for third screener package and fourth screener package (First-Class Mail version)

US DEPARTMENT OF COMMERCE
Economics and Statistics Administration
US Census Bureau
1201 E 10TH Street
Jeffersonville IN 47132-0001
OFFICIAL BUSINESS
Penalty for Private Use $300
BC-1728(0939S) (8-2018)

AN EQUAL OPPORTUNITY EMPLOYER

PRESORTED
FIRST-CLASS MAIL
POSTAGE & FEES PAID
U.S. CENSUS BUREAU
PERMIT NO. G-58

Please respond within two weeks.

United States™ Census Bureau

The World On Time

Federal Express

F-20

Align top of FedEx PowerShip Label here.

Envelope for FedEx version of second screener package and fourth screener package

▶▶▶ **Pull to open**

Customer: These service boxes are provided for your convenience. Service must be marked on airbill.

Pull to open ◀◀◀

Extremely Urgent:
Recipient please hand deliver to addressee.

☐ **FedEx Priority Overnight®**
Next business morning service (not available to all locations).

☐ **FedEx Standard Overnight®**
Next business day service (not available to all locations).

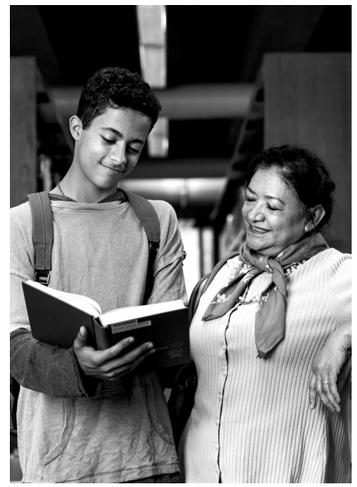
☐ **FedEx First Overnight℠**
Earliest next business morning delivery to select locations.

☐ **FedEx International Services**
Scheduled delivery times vary by location.

☐ **Saturday Delivery**
Service not available to all locations.

UNITED STATES DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. Census Bureau

National Household Education Survey



The National Center for Education Statistics (NCES), within the U.S. Department of Education, is authorized to conduct the National Household Education Survey (NHES) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §9543). The U.S. Census Bureau is administering this voluntary survey on behalf of NCES. There are no penalties should you choose not to participate in this study. All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151). According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this voluntary survey is 1850-0768. The time required to complete this survey is estimated to average 3 minutes per response, including the time to review instructions, gather the data needed, and complete and review the survey. If you have any comments concerning the accuracy of the time estimate, suggestions for improving this survey, or any comments or concerns regarding the status of your individual submission of this survey, please e-mail: nhes@census.gov or write directly to: Sarah Grady, National Center for Education Statistics (NCES), PCP, 550 12th St., SW, 4th floor, Washington, DC 20202.

NHES-SCRN
(09/18/2018)

24019010

OMB No. 1850-0768: Approval Expires 09/30/2021

National Household Education Survey

Conducted for:
U.S. Department of Education
National Center for Education Statistics

Start Here

The Department of Education is studying households with children or youth age 20 or younger. Each household is different, and we need your response so we can send you a survey that is right for your household.

- *Return this form even if there are no children or youth in this household after marking the correct box in item 1 below.*
- *This survey should be filled out by an adult household member living at this address.*
- *Please use a blue or black pen if available.*

1. Are there any children or youth age 20 or younger living in this household?

Include small children, foster children, babies, and those living in college housing (if they have no other permanent home).

☐ Yes
☐ No → ***Please stop here and RETURN this survey to us in the enclosed envelope. It is important that we receive a response from every household selected for this study. Thank you for your time.***

2. How many children or youth age 20 or younger live in this household?

☐☐ number age 20 or younger

- **Continue answering questions 3 through 7 for each child or youth living in this household.**

- *Start with the youngest child or youth who is age 20 or younger.*

	Child / Youth 1	Child / Youth 2	Child / Youth 3	Child / Youth 4	Child / Youth 5
3. What is his or her first name, initials, or nickname? *First names will be used only to ask you questions about the education of a specific child.*	☐☐☐☐☐☐☐☐ First name/initials/nickname	☐☐☐☐☐☐☐☐ First name/initials/nickname	☐☐☐☐☐☐☐☐ First name/initials/nickname	☐☐☐☐☐☐☐☐ First name/initials/nickname	☐☐☐☐☐☐☐☐ First name/initials/nickname
4. What is this child/youth's month and year of birth?	☐☐ / ☐☐☐☐ month year of birth	☐☐ / ☐☐☐☐ month year of birth	☐☐ / ☐☐☐☐ month year of birth	☐☐ / ☐☐☐☐ month year of birth	☐☐ / ☐☐☐☐ month year of birth
5. What is this child/youth's sex?	☐ Male ☐ Female	☐ Male ☐ Female	☐ Male ☐ Female	☐ Male ☐ Female	☐ Male ☐ Female
6. Is this child/youth currently in . . . . *Mark [**X**] ONE only.*	☐ Homeschool instead of attending a public or private school for some or all classes, ☐ Public or private school, or preschool, ☐ College, university or vocational school, or ☐ Not in school? ↳ ***GO TO child/youth 2***	☐ Homeschool instead of attending a public or private school for some or all classes, ☐ Public or private school, or preschool, ☐ College, university or vocational school, or ☐ Not in school? ↳ ***GO TO child/youth 3***	☐ Homeschool instead of attending a public or private school for some or all classes, ☐ Public or private school, or preschool, ☐ College, university or vocational school, or ☐ Not in school? ↳ ***GO TO child/youth 4***	☐ Homeschool instead of attending a public or private school for some or all classes, ☐ Public or private school, or preschool, ☐ College, university or vocational school, or ☐ Not in school? ↳ ***GO TO child/youth 5***	☐ Homeschool instead of attending a public or private school for some or all classes, ☐ Public or private school, or preschool, ☐ College, university or vocational school, or ☐ Not in school? ↳ ***Return Survey.***
7. What is this child/youth's current grade or equivalent?	☐ Preschool ☐ Kindergarten ☐☐ write grade 1 through 12 ☐ College, university or vocational school ☐ None of these	☐ Preschool ☐ Kindergarten ☐☐ write grade 1 through 12 ☐ College, university or vocational school ☐ None of these	☐ Preschool ☐ Kindergarten ☐☐ write grade 1 through 12 ☐ College, university or vocational school ☐ None of these	☐ Preschool ☐ Kindergarten ☐☐ write grade 1 through 12 ☐ College, university or vocational school ☐ None of these	☐ Preschool ☐ Kindergarten ☐☐ write grade 1 through 12 ☐ College, university or vocational school ☐ None of these

- **Please verify you have listed the 5 youngest children or youth living in this household in columns 1 through 5 above.**

- **Thank you. Please return this form in the postage-paid envelope provided or mail it to:**

U.S. Census Bureau
ATTN: DCB 60-A (0939)
1201 E. 10th Street
Jeffersonville, IN 47132-0001

Toll-free number for questions: 1-888-840-8353

24019028

Appendix G. Interview Materials

G.1 Materials Used for Recruitment

G.1.1 Invitation Letter

U.S. DEPARTMENT OF EDUCATION
INSTITUTE OF EDUCATION SCIENCES

NATIONAL CENTER FOR EDUCATION STATISTICS

Dear <City> Household:

The National Center for Education Statistics (NCES) and American Institutes for Research (AIR) are doing an important study in your area.

- This study will help us understand how to make NCES research more useful and helpful. We would like to get your feedback on a variety of topics, such as how you like to spend your time, how you go about day-to-day tasks like sorting your mail, and how you feel about participating in research.
- Because your participation is so important, you will get **$120 cash** as a thank you for sharing your opinions and experiences with us**.** This voluntary, 90-minute conversation takes place in your home at a convenient time for you.

We know that you are busy, and we have enclosed $5 as a thank you for your time.

To see if you are eligible to participate, please do one of the following:

- Call us toll-free at **1-888-261-0922.**
- E-mail us at **helpNCES@air.org.**

Thank you in advance for participating. We look forward to hearing from you.

Sincerely,

James Lynn Woodworth
Commissioner, National Center for Education Statistics

Authorization and Confidentiality of Information

American Institutes for Research is administering this voluntary study on behalf of the National Center for Education Statistics (NCES). There are no penalties should you choose not to participate in this study. All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151). The National Center for Education Statistics (NCES), within the U.S. Department of Education, is authorized to conduct the National Household Education Survey (NHES) by the Education Sciences Reform Act of 2002 (ESRA 2002, 20 U.S.C. §9543).

G.1.2 First Reminder Postcard

G.1.3 Second Reminder Postcard

G.1.4 *Sorry We Missed You* Card

The National Center for Education Statistics (NCES) and American Institutes for Research (AIR) are doing an important study in your area. We stopped by to invite you to participate.

Sorry We Missed You!

- This study will help us understand how to make NCES research more useful and helpful. We would like to get your feedback on a variety of topics, such as how you like to spend your time, how you go about day-to-day tasks like sorting your mail, and how you feel about participating in research.
- If you meet with us, **you will receive $120.**
- This voluntary conversation lasts about 90 minutes and takes place in your home at a convenient time for you.

Contact us at 1-888-261-0922 or helpNCES@air.org to see if you are eligible!

G.1.5 Appointment Reminder Card

Your conversation with
American Institutes for Research

Conversation Day and Date: _____

Conversation Time: _____

Conversation With: _____

Questions?

Call us at **1-888-261-0922** or e-mail us at **helpNCES@air.org**.

G.1.6 Commonly Asked Questions Handout

Commonly Asked Questions

What is this study about? What will you do with my responses?
The focus of the study is to understand how to improve research done by the National Center for Education Statistics, which is part of the U.S. Department of Education. We would like to hear about your opinions and experiences with a variety of topics. For example, we would like to know what kinds of things in your everyday life are important to you. We would also like to know about how you handle certain tasks, like collecting and reviewing your home's postal mail. Finally, we would like to get your feedback on some of our research materials. Ultimately, this information will help us improve the National Household Education Surveys and ensure that they are relevant to all household in the United States.

Who is conducting this study?
The U.S. Department of Education, specifically the National Center for Education Statistics (NCES), is conducting this study. You can learn more about NCES by going to www.nces.ed.gov.

The American Institutes for Research (AIR), a not-for-profit behavioral and social science research firm, is carrying out this study on behalf of NCES. You can learn more about AIR by going to www.air.org.

How much time will this take?
The conversation should take about 90 minutes to complete.

Where will this take place?
The conversation will take place at your home at a time that is convenient for you. We would like to speak with you in your home because we want you to share your experiences and opinions in a setting that is comfortable and familiar to you.

Who will know if I participate in the study?
Only the study team at AIR will know who participated in the study. The information collected during our conversation will be stored on AIR's secure computer servers. We will not link what you say to anything identifiable about you, such as your name or address.

What do I get if I meet with you?
You will receive $120 cash as a thank you for your participation.

Who can I contact if I have questions about participating in the study?
You can call us toll-free at **1-888-261-0922** or e-mail us at **helpNCES@air.org**.

G.1.7 Telephone Recruitment Script

Introduction/recruitment script

IF SOMEONE ANSWERS THE PHONE:

Hello, this is [NAME] from American Institutes for Research, calling on behalf of the National Center for Education Statistics. Am I speaking with a resident of [ADDRESS]?

- *If yes, continue with the next paragraph.*
- *If no, say*: I am sorry. I have the wrong number. Thank you for your time. Have a nice day. *End phone call.*

I am calling to follow up on a letter that was recently mailed to your house. The National Center for Education Statistics and American Institutes for Research are conducting an important study in your area that will help us understand how to make our research more useful and helpful. We would like to meet with you to get your feedback on a variety of topics, such as how you like to spend your time and how you go about daily tasks like sorting mail. If you complete a 90-minute conversation with us in your home, we will give you $120 cash to show our thanks.

Are you interested in this opportunity?

- *If yes, continue with the next paragraph.*
- *If no, try to address their concerns. If still not interested, say*: No problem. Thank you for your time. Have a good day. *End phone call.*

Screening script

Great. First, I need to ask a few questions to make sure you are eligible to participate.

1. Did you live or stay here most of the time between January and April 2019?
    - *If yes, continue with next screener item.*
    - *If no, say:* Unfortunately, we can only meet with people who lived or stayed at this address most of the time between January and April 2019. Is there anyone else living here who lived or stayed here most of that time?
        - *If yes, ask if you can speak with them about participating.*
            - *When that person is on the phone, go back to the study introduction paragraph and then restart the screener.*
            - *If the person is not available right now, ask when would be a good time for you to call back, thank them for their time, and then end the call. Try to get the other person's first name to facilitate the return call.*
        - *If no one else lived here during that time period, thank them for their time, end phone call and do not call again.*

2. Ok, great. Can you please confirm your age?

- *If 18 or older, continue with next screener item.*
- *If 17 or younger, say:* Unfortunately, only adults can participate. Is there an adult at home with whom I can speak?
    - *When the adult is on the phone, go back to the study introduction paragraph and then restart the screener.*
    - *If an adult is not available right now, ask when would be a good time for you to call back to speak with one, thank them for their time, and then end the call. Try to get the other person's first name to facilitate the return call.*

3. Great, thanks. Are you involved in handling your household's postal mail—for example, collecting, reviewing, or responding to the mail?
    - *If yes, continue with next screener item.*
    - *If no, say:* Unfortunately, we can only meet with one of the people who handles your household's mail. Can I please speak to one of those people?
        - *When that person is on the phone, go back to the study introduction paragraph and then restart the screener.*
        - *If the person is not available right now, ask when would be a good time for you to call back, thank them for their time, and then end the call. Try to get the other person's first name to facilitate the return call.*

Great, thank you! You are eligible to participate in the study.

Scheduling script

What days [this/next] week would be convenient for you to meet with us?

Looking at when interview teams are available in that area, work with participant to schedule the interview. Our preference is to do interviews sooner than later.

Once interview date/time are decided, record them and say: We have you scheduled on [DATE] at [TIME].

[Note: the possible dates for doing interviews are: May 3-8, May 15-21, May 30-June 5. We prefer to schedule something as soon as possible, in case the participant ends up having a conflict and needs to reschedule.]

We would like to send you a confirmation message with the date and time of your meeting. Do you prefer that we text you or that we e-mail you?

- *If willing to receive confirmation message*: And what is the best [phone number/e-mail address] for reaching you?
- *If not willing to receive confirmation message, reassure them that this information will only be used for communicating with them about the interview. If still not willing, say*: Ok, no problem.

We would also like to reach out to you the day before the meeting to confirm that this time still works for you. Do you prefer that we call you or that we e-mail you?

- *If willing to receive reminder message and request a different mode than for the confirmation message:* And what is the best [phone number/e-mail address] for reaching you?
- *If not willing to receive reminder message, reassure them that this information will only be used for communicating with them about the interview. If still not willing, say*: Ok, no problem.

Thank you for participating! If any conflicts come up between now and [DATE OF INTERVIEW] please call our toll-free number at 1-888-261-0922 or email us at HelpNCES@air.org.

We look forward to seeing you soon. Bye. *End call.*

G.1.8 In-Person Recruitment Script

Introduction

If the person who answers the door is clearly a child, ask about speaking to an adult in the house. Otherwise, say:

Hi, my name is [YOUR NAME] from American Institutes for Research. We recently sent a letter to your house about an important study we are doing with the National Center for Education Statistics. We would like to have a conversation with you to get your opinions on a variety of topics, such as how you like to spend your time, how you go about day-to-day activities like sorting your mail, and how you feel about participating in research. The conversation lasts 90 minutes, and we will give you $120 cash as a thank you for your time. Would you like to participate?

- *If yes, continue with the next section.*
- *If no, try to address their concerns. If still not interested, say:* No problem, I understand. Is anyone else from this household available to speak with us?
  - *If yes and available, repeat the introduction once that person comes to the door.*
  - *If yes but not available right now, say:* No problem. We can come back at a more convenient time for them. What would be a good time for us to come back? *[record date/time, and, if possible, the other household member's first name to facilitate the return visit]* Here is a card with more information about the study that you can give to them. It also lists our contact information in case they would like to contact us sooner about participating. *[hand Sorry We Missed You card to household member]* Thank you for your time! Have a nice day.
  - *If no one else lives here or not interested in you speaking with anyone else, say:* I understand. Would you be willing to answer a few quick questions instead? It will take less than five minutes.

- *If no:* No problem. Thank you for your time. Have a nice day. *(end interview)*
- *If yes, go to* ***Short Interview Questions****:* Great, thank you.

Screener

Once the interested household member is at the door:

Great! First, I need to ask a few quick questions to make sure you are eligible to participate.

1. Can you please confirm that we are at [STREET ADDRESS]?
   - *If yes, continue with next screener item.*
   - *If no, say*: Unfortunately, I can only meet with someone who lives at [STREET ADDRESS]. I am sorry; I must have the wrong house. Thank you for your time. Have a nice day. *End conversation.*

2. Did you live or stay here most of the time between January and April 2019?
   - *If yes, continue with next screener item.*
   - *If no, say*: Unfortunately, we can only meet with people who lived or stayed at this address most of the time between January and April 2019. Is there anyone else living here who lived or stayed here most of that time?
     - *If yes and available, repeat the introduction once that person comes to the door.*
     - *If yes but not available right now, say:* No problem. We can come back at a more convenient time for them. What would be a good time for us to come back? *[record date/time, and, if possible, the other household member's first name to facilitate return visit]* Here is a card with more information about the study that you can give to them. It also lists our contact information in case they would like to contact us sooner about participating. *[hand Sorry We Missed You card to household member]* Thank you for your time! Have a nice day.
     - *If no one else lives here or not interested in you speaking with anyone else, say:* No problem. Thank you for your time. Have a good day.

3. Ok, great. Can you please confirm your age? *[do not ask this if respondent is clearly much older than 18, but if there is any uncertainty make sure you confirm their age]*
   - *If 18 or older, continue with next screener item.*
   - *If 17 or younger, say:* Unfortunately, only adults can participate. Is there an adult at home with whom I can speak*?*
     - *If yes and available, repeat the introduction once that person comes to the door.*
     - *If yes but not available right now, say:* No problem. We can come back at a more convenient time for them. What would be a good time for us

to come back? *[record date/time, and, if possible, the other household member's first name]* Here is a card with more information about the study that you can give to them. It also lists our contact information in case they would like to contact us sooner about participating. *[hand Sorry We Missed You card to household member]* Thank you for your time! Have a nice day.

- *If no one else lives here or not interested in you speaking with anyone else, say:* No problem. Thank you for your time. Have a good day.

4. One last question: Are you involved in handling your household's postal mail—for example, collecting, reviewing, or responding to the mail?
    - *If yes, continue with next screener item.*
    - *If no, say*: Unfortunately, we need to have the conversation with one of the people who handles your household's mail. Can I please speak to one of those people?
        - *If yes and available, repeat the introduction once that person comes to the door.*
        - *If yes but not available right now, say:* No problem. We can come back at a more convenient time for them. What would be a good time for us to come back? *[record date/time, and, if possible, the other household member's first name to facilitate return visit]* Here is a card with more information about the study that you can give to them. It also lists our contact information in case they would like to contact us sooner about participating. *[hand Sorry We Missed You card to household member]* Thank you for your time! Have a nice day.
        - *If no one else lives here or not interested in you speaking with anyone else, say:* No problem. Thank you for your time. Have a good day.

Scheduling

Great, thank you! You are eligible to participate in the study. We can meet right now if it is convenient for you. The conversation will take about 90 minutes.

- *If they are available now, start the interview.*
- *If they are not available now, say*: No problem. We can come back at a time that is more convenient for you. What days this week would be convenient for you to meet?
    - *Based on your availability, work with the respondent to find a time for the interview.*

- *Record the date/time for yourself, and on an Appointment card, and say:* We have you scheduled on [DATE] at [TIME]. Here's an appointment confirmation card for you to keep as a reminder.
- *Hand them the card and then say:* And could I have your first name for my appointment calendar?
- *Record name, then say:* We would like to reach out to you the day before the conversation to confirm that this time still works for you. Do you prefer that we call you or that we e-mail you?
- *Once they respond, say:* And what is the best [phone number/email address] for reaching you? *If they express concern about providing this information, let them know this will only be used to remind them about the appointment and confirm they are still available.*
- *Record answer for your records and say:* Thank you for participating! If any questions or conflicts come up between now and [DATE OF INTERVIEW], please call or email us using the information listed on your appointment card. I look forward to seeing you soon. Have a nice day.

G.2 Materials Used During Interviews

G.2.1 Informed Consent Form

Study Participation Consent Form

The U.S. Department of Education's National Center for Education Statistics (NCES) is conducting this study to understand how to make its research more useful and helpful. NCES has hired American Institutes for Research (AIR) to carry out this study.

- We are asking you to participate in a 90-minute conversation where we will ask your opinion about a variety of topics, such as how you like to spend your time, how you go about day-to-day activities like sorting your mail, and how you feel about participating in research.

- Your participation will contribute valuable insights that will help us improve NCES surveys; however, your participation is completely voluntary, and there are no penalties should you choose not to participate in this study. You may stop the conversation at any time without penalty.

- The information you share with us will be combined with the responses of other participants in a summary report that does not identify you or anyone else individually. All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151).

- If you have any questions or concerns related to your participation in this interview, please contact Sarah Grady at the National Center for Education Statistics. You can reach her at 202-245-7063 or nhes@ed.gov.

- We would like to record this interview to make sure that we accurately capture the details that you provide. However, if you do not agree to be recorded, we will not record the interview. If you agree to be recorded, only AIR and NCES employees working on this study will be able to listen to the recording. All recordings will be destroyed at the end of the study. Do we have your permission to record the interview?

  ☐YES ☐NO

By signing your name below, you agree to participate in this study.

Signed: _____ Date: _____
Printed Name: _____

G.2.2 Unstructured Interview Protocol and Demographics Form

The goal of each interview is to conduct an efficient interview and observation with an ethnographic approach in order to glean an in-depth understanding of participants' perspectives and experiences on a variety of topics related to surveys. The interaction should be a conversation where the participant does most of the talking and you, through active listening and engagement, probe them on particular objectives. Therefore, there is no set script. You must rely on your experience and training to emerge from the situation with the rich detail needed to address why this particular household did not respond to the National Household Education Survey.

Previous research has elucidated the role of certain factors, such as civic engagement and privacy concerns, in why people do not respond to surveys. However, an important component of this qualitative research project is to explore the context (physical, social, and emotional) in which these nonrespondents are embedded, so that themes can arise from the data that help explain why people did not respond to the screener. We are interested in why they did not participate, which is likely to be different for different people. For some, they may not be interested in taking surveys in general. For others, they may have wanted to participate but other factors in their lives intervened. Additionally, some households may not have received the initial screener. To accomplish that goal, the interviewer and the interview guide need to be flexible and able to explore and probe on issues the participant deems relevant.

1. Before you begin the interview, give the informed consent document to the participant, answer any questions they may have, and begin recording with their permission. Once they sign the informed consent, put it away in a folder.

2. Start with rapport building through basic questions about household make-up (Domain 1).

3. Next, proceed with the Experience with Mail Delivery and Experience with NHES Mailings and Screener domains (Domains 2 and 3).

4. After this, you should rely on your training to decide what is the best course forward that will yield the most informative interview; however, you should at least touch on all of the domains listed in this document.

5. When there are about 5 minutes left in the interview, ask the questions on the demographics form.

6. Finally, hand the participant their incentive and make sure they sign the incentive receipt form.

Though we generally want to start with the Experience With Mail Delivery and Experience With NHES Mailings and Screener domains, we expect that other domains, such as Time Use and Privacy Concerns, will arise during these discussions. The domains may flow into one another or may not be discrete categories to the participant. For example, you may begin

talking about the participant checking her mail, which leads into a conversation about what activities she enjoys in her free time. Should that happen, you would want to interweave questions about time use and the related objectives. Although the conversation will be free-flowing, we want to get a chronological sense of how they handle their mail. For example, do they check their mailbox every evening around the same time? Do they review the mail immediately? Do they sort the mail while standing at the mailbox? Do they come inside and put it away to sort for later?

The remainder of this document lays out the key domain/objectives to be covered in the interview and proposes sample questions and probes you may want to ask in order to fully explore that objective. However, the key to this interview is your ability to listen to participants' responses and devise follow-up questions in the moment that serve to deepen our understanding of their point of view. The sample questions are examples and may not be relevant or meaningful to every participant. Also, it is very important to let the participant use their own words to answer questions. Probe without putting words in their mouth with very open questions. For instance, ask "Why do you do that?" as opposed to "Do you do that so you can X?"

In addition to understanding the participants' experiences around the given objectives, each interview will include two activities as part of the Experience with Mail Delivery and Experience with NHES Mailings and Screener domains.

1. Mail Delivery: In the first, you will offer the participant a stack of mail and the participant will talk aloud about the process of sorting, organizing, and making determinations about how they would handle each piece if they received it, and will show you where and how that process occurs in the home.

2. NHES Mailings and Screener: In the second, you will hand the participant the NHES materials that were mailed to them earlier this year and the participant will talk aloud about his or her reactions to and opinions about the mailings. Finally, you will show the participant the NHES screener questionnaire and talk through their opinions and reactions.

Throughout the interview, please incorporate the participant's surroundings into your questioning as appropriate. Ultimately, you want to pull in objects or observations to discuss if you believe they may be relevant to why this household did not respond to the screener. For example, if you see an American flag on the desk you may want to ask something like: "Can you tell me a little bit about the American flag on your desk?" or "I see you have an American flag on your desk. What, in particular, is important to you about displaying the flag?" The household observation is part of the interview process. You will want to take note of their surroundings: what do they hang on their walls? Do you see visible mail piles? Are there children's toys present? What types of books or magazines are displayed? At the conclusion of the interview, in your field notes, you will need to write down your observations and describe (using thick description as discussed in the training) the exterior of the home and the rooms to which you had access during interview.

Interview domains

Domain 1: Rapport Building and Household Make-up

Objective: To understand key aspects of the participant's household composition and build rapport.

Sample Questions

- Tell me a little about who lives here with you.
- I see that you have three kids. What types of activities do they enjoy?
- What drew you to the neighborhood?
- I noticed X (such as a security sign, holiday decor, etc.) outside your home. Can you tell me a little about it?

Domain 2: Experience with Mail Delivery

Objective: To understand how the household interacts with their mail. For example, how mail enters the participant's household, what happens to it after it arrives, how participants decide what mail to keep/open/throw away, and how easy or difficult it is for the household to check or send their mail. Have the participant walk you through their mail receipt routine, asking questions about timing and activities along the way. During this exchange you will incorporate the activity below.

Sample Questions

- Where do you get your mail (home delivery mailbox, home delivery mail slot, P.O. Box)? Can you show me? (if nearby)
- What kinds of mail do you typically get?
- How do you know when mail is delivered?
- How often do you check your mail?
- Where do you send your mail (walk to P.O. box, down a building mail chute, mailbox, etc.)? Can you show me? (if different from delivery)
- How do you decide which pieces of mail to open?
- How would you describe the kinds of mail you keep when you sort through unopened mail?
- How about the kinds of mail that you throw away?
- What makes you throw away a piece of mail before opening it?
- What makes you throw away a piece of mail before reading it?
- What do you do with your mail once you've read it?
- How do you keep track of mail you need to send/respond to?
- How often does mail for other addresses get mixed up with your mail?

Mail Interaction Activity: *Hand the participant the stack of mail prepared for this interview. Tell the participant to imagine that this was what they received in today's mail and that their name is Jaime Smith and that they live at 123 Main St Anytown USA. Ask them to talk out loud as they walk through what they would do with the stack. Participants should verbalize what*

they are doing at each step. Make sure the participant covers sorting, organizing, distributing among household members, opening, storing, saving, discarding, and responding to mail. It is important to try to get the participant to verbalize which aspects of each mailing are leading them to make various decisions about what to do with them so that we can apply these findings to the potential redesign of future NHES mailings. The focus is on the envelope/exterior of the mailing and not its contents (many of the envelopes are empty). The prepared stack should include one NHES mailing. Observe what the participant does with this envelope during the activity, but wait to probe about it until the sorting activity is complete. In other words, let the participant treat it like the other pieces of mail. You will only call attention to it at the start of the next activity.

Domain 3: Experience with NHES Mailings and Screener

Objective: To gather participants' opinions and reactions to the survey packages that were mailed to them earlier this year. To the participant, this should be a seamless transition from that activity above. In practice, this is one activity that covers multiple domains.

NHES Materials Activity: *Locate the NHES screener material from the stack of mail and ask them to open it and "process" it as they normally would. Observe how they open it. Once it is opened, ask participants their opinions and reactions to it. Please cover all aspects of the materials – the design, layout, color, wording, the return address, the mailing address, the stamp, the envelope size, etc. Probe on what would make participants more likely to open, read, and respond to the mailing.*

Sample Questions

- Do you remember receiving this? (*Hand the respondent the mailings (see below for the list) one at a time in the order they would have received them. Allow them a moment to look at each mailing so that they can answer if they remember receiving it. After they say if they remember, follow the general line of questioning below).*
    a. Advance letter + envelope
    b. Initial screener invitation letter + $5 cash + envelope
    c. Screener pressure-sealed mailer/postcard
    d. Second screener reminder letter + envelope
    e. Third screener reminder letter + questionnaire + envelope
    f. Fourth screener reminder letter + questionnaire + envelope
- If the participant remembers: *(Note to interviewers: Repeat this line of questioning for each of the NHES mailings that the participant remembers.)*
    - What do you remember about receiving this mailing?
    - What did you do with this envelope when you received it earlier this year?
    - (If opened the mailing): What do you remember about opening the letter? What stood out to you?
    - (If did not open the mailing): What changes could we make that would make it more likely that you would open this mailing?
    - Why did you throw it away (or keep it)?
    - (If remembers a letter that mentions the web screener): Why did you (or did you not) access the web page listed in the letter?

        - (If accessed the web page): What do you remember about accessing the web page listed in the letter?
        - (If accessed the web page): What stopped you from filling out the survey? *(Confidentiality concerns, technical issues, not interested in the topic?)*
    - (If remembers a mailing that includes a paper questionnaire): What do you remember about the paper screener that you received?
        - What stopped you from filling it out?
    - What changes could we make that would make it more likely that you would respond to this survey?
- If the participant does not remember any of the materials:
    - Based on what you see here, do you think you would complete this survey if you got it in the mail? Why or why not?
    - What stands out to you as you look at it right now?
    - If you received this in the mail today, how likely would you be to open it?
    - What would make you open (or not open) it?
    - What changes could we make that would make it more likely that you would open these mailings?
    - What changes could we make that would make it more likely that you would respond to this survey?

Domain 4: Understanding of and Attitudes Toward Surveys

Objective: To gauge the participant's level of knowledge of and comfort with surveys

Sample Questions

- What do you think of when I use the word 'survey'? What do you understand about what a survey is?
- Have you ever done a survey before?
- What are the benefits, if any, to participating in a survey? What, in your opinion, are the costs/risks/burdens to participating?
- Tell me about the last time you completed a survey.
- Do you enjoy completing surveys? What do you like/not like about doing them?
- How do you like to take surveys? (probe on paper, computer, tablet, phone, in-person)
- What are your experiences with getting money or gift cards for completing surveys?

Domain 5: Privacy Concerns

Objective: To understand how the participant views privacy and how this may affect their willingness to do surveys.

Sample Questions

- What does the word "privacy" mean to you? Tell me the first few words that pop into your head.
- How do you feel about information that is collected about you and how it is being used? How do you think it is used? Does it matter to you who is collecting the information? *(Note: If the participant is unclear about the meaning of the question, you can ask about different settings. "For example, how do you feel about filling out forms at the doctor's office? How do you feel about web sites collecting cookies?")*
- How do you feel about the amount of control you have over your personal information?
- What are some things you do to protect your personal information?
- How do you feel about providing information on a survey about yourself or your family? Does it matter who is doing the survey? Does it matter what the question is asking? (If so): What kinds of questions make you uncomfortable?
- Thinking about your daily life, when you have private information you would like to share with another trusted person or organization, how secure do you feel sharing it through the mail? Online? Via email? Over the phone? What makes you feel secure / insecure about information sharing?
- For respondents with children:
    - What rules, if any, do you have about your child/children using the Internet?
    - What discussions have you had with your child/children about giving out information when s/he is/are online?

Domain 6: Attitudes Toward Government

Objective: To understand the participant's attitudes toward the federal government and how this may affect their willingness to participate in government-sponsored surveys. (Try to avoid extended discussion of presidential and electoral politics).

Sample Questions

- What role do you believe federal government agencies should play in collecting information about people through surveys? What information do they need?
- Why does the U.S. continue to do a Census every ten years? What is that information for? How do you feel about being asked to complete a Census form?
- What are your thoughts on the Department of Education? What role does it play in your life?
- How important is voting to you?
- How much impact do you think the federal government has on your daily life?

Domain 7: Education

Objective: To understand the participant's opinions about education.

Sample Questions

- What role do you think parents should take when it comes to their child's schooling?
- In general, what are your thoughts on today's education system?
- Are you happy with the school your child attends? Why/why not?
- How involved are you with your child's school?
- How important/valuable was your own education experience to your daily life?

Domain 8: Time Use

Objective: To understand how people use their time day-to-day to get a sense of their time commitments and priorities.

Sample Questions

- Can you briefly describe a typical weekday/weekend day?
- What activities do you make sure you do every day?
- How much time do different people in your family typically spend at home?
- What do you do to relax?

Domain 9: Civic and Community Engagement

Objective: To explore the participant's connection to the community, which has been shown to influence survey participation.

Sample Questions

- Tell me about any news sources you follow.
- To what extent to do you feel like an important part of your neighborhood or community?
    - What makes you feel like an important part? What makes you feel like not an important part?
- What types of groups are you involved in?
    - What about other members of your family?

Domain 10: Household Information and Demographics

Objective: To understand the types of households and people with whom we are speaking and to determine if different subsets of nonrespondents have different types of concerns or reasons for nonresponse.

Lastly, I'll ask you a few questions about your home and the people who live here. These are basic demographic questions like the kinds you are asked on the Census. [Note to interviewers: Please read all the questions in this section and ask them exactly as worded.]

If applicable: We may have already spoken about some of these topics, but I would just like to confirm this information now. *If you know the participant has already shared this information with you, add "Just to confirm" before the question; otherwise, questions should be read exactly as shown.*

1. Including yourself, how many people live here? _____
   [ ] Don't know
   [ ] Refused
   (*if only 1 person lives here, skip to question 2; otherwise, ask question 1a.*)

   a. How many people who live here are younger than 21 years old? _____
      [ ] Don't know
      [ ] Refused

2. What is your current age? _____
   [ ] Refused

3. What is your gender? (*Do not read response options.)*
   [ ] Male
   [ ] Female
   [ ] Other, specify: _____
   [ ] Refused

4. Are you of Hispanic, Latino, or Spanish origin?
   [ ] Yes
   [ ] No
   [ ] Other, specify: _____
   [ ] Refused

5. What is your race? (*Do not read response options. Select all that apply.*)
   [ ] American Indian or Alaska Native
   [ ] Asian
   [ ] Black or African American
   [ ] Native Hawaiian or other Pacific Islander
   [ ] White
   [ ] Refused

6. Which language is spoken most often by the adults who live here? (*Do not read response options.)*
   [ ] English
   [ ] Spanish
   [ ] Other, specify: _____
   [ ] Refused

7. Do you have Internet access at home…?

a. On a computer?	[ ] Yes	[ ] No	[ ] Don't know	[ ] Refused
b. How about on a tablet?	[ ] Yes	[ ] No	[ ] Don't know	[ ] Refused
c. How about on a cell phone?	[ ] Yes	[ ] No	[ ] Don't know	[ ] Refused

8. What is the highest grade or level of school that you have completed? (*Do not read response options.)*
   [ ] 8th grade or less
   [ ] High school, but no diploma
   [ ] High school diploma or equivalent (GED)
   [ ] Vocational diploma after high school
   [ ] Some college, but no degree
   [ ] Associate's degree (AA, AS)
   [ ] Bachelor's degree (BA, BS)
   [ ] Some graduate or professional education, but no degree
   [ ] Master's degree (MA, MS)
   [ ] Doctorate degree (PhD, EdD)
   [ ] Professional degree (MD, DDS, JD, LLB)
   [ ] Refused

9. Are you currently employed and working for pay?
   [ ] Yes
   [ ] No
   [ ] Refused

10. Are you a full-time or part-time student?
    [ ] Yes
    [ ] No
    [ ] Refused

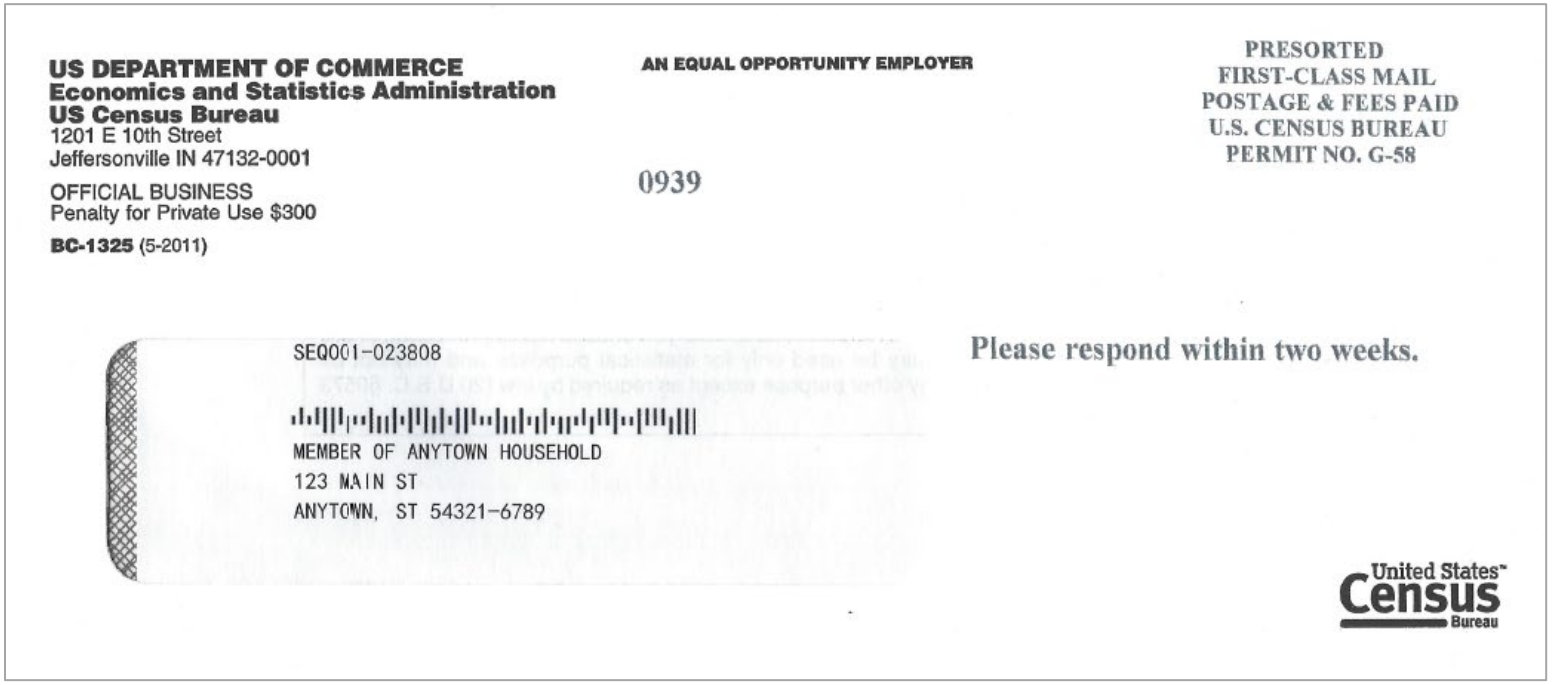
11. Based on this sheet [*Hand participant the income sheet*], which category best fits the total income of all persons in your home over the past 12 months? Include your own income. Include money from jobs or other earnings, pensions, interest, rent, Social Security payments, and so on. (*Do not read response options. If participant is struggling, let them know they can make their best guess.*)
    [ ] A: $0 to $10,000
    [ ] B: $10,001 to $20,000
    [ ] C: $20,001 to $30,000
    [ ] D:$30,001 to $40,000
    [ ] E: $40,001 to $50,000
    [ ] F: $50,001 to $60,000
    [ ] G: $60,001 to $75,000
    [ ] H: $75,001 to $100,000
    [ ] I: $100,001 to $150,000
    [ ] J: $150,001 to $200,000
    [ ] K: $200,001 to $250,000
    [ ] L: $250,001 or more
    [ ] Don't know
    [ ] Refused

G.2.3 Income Showcard

A	$0 to $10,000
B	$10,001 to $20,000
C	$20,001 to $30,000
D	$30,001 to $40,000
E	$40,001 to $50,000
F	$50,001 to $60,000
G	$60,001 to $75,000
H	$75,001 to $100,000
I	$100,001 to $150,000
J	$150,001 to $200,000
K	$200,001 to $250,000
L	$250,001 or more

G.2.4 Mail Activity Materials

U.S. Department of Commerce envelope (NHES initial screener package)



National Council for Education envelope

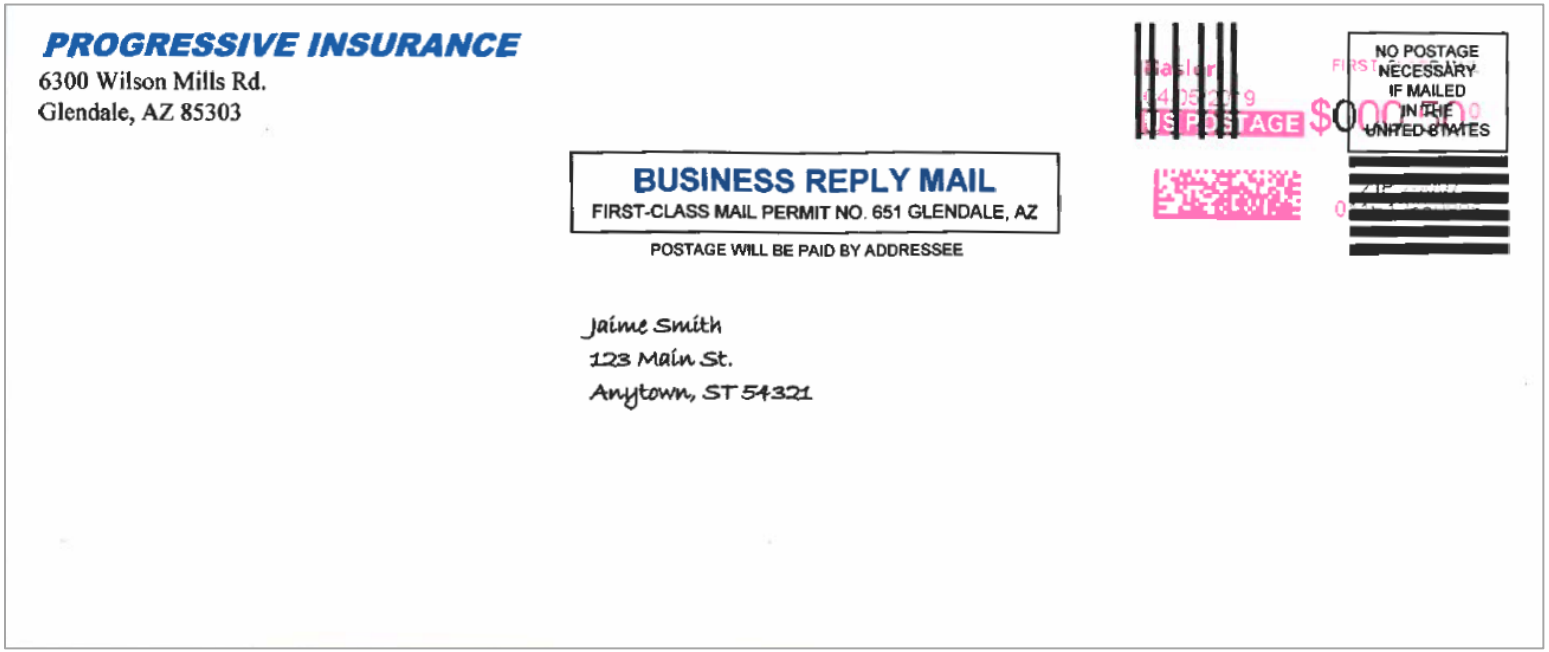
USPS National Customer Support Center envelope

National Center for Public Opinion Research envelope

Utility company envelope

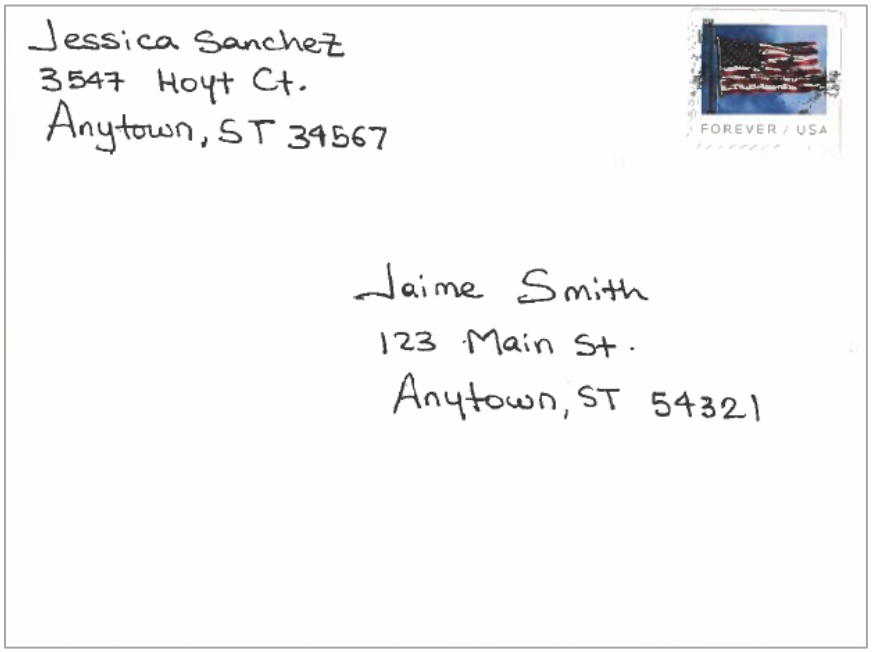
Note: This envelope differed slightly by site, with each site's envelope including the name and address of a local utility company. The name and address have been redacted from the envelope; the city and state have also been redacted from the prepaid postage.

Insurance envelope



Quality Bankers envelope

Personal notecard envelope



Candidate forum flyer

Dentist appointment reminder card

G.2.5 Short Interview Questions

A. First, can you please confirm that you are at least 18 years old?
   - Yes *(continue)*
   - No *(go to end interview)*
   - Don't know *(go to end interview)*
   - Refused *(go to end interview*

B. Can you also confirm that we are at [STREET ADDRESS]?
   - Yes *(continue)*
   - No *(go to end interview)*
   - Don't know *(go to end interview)*
   - Refused *(go to end interview)*

C. Did you live or stay here most of the time between January and April 2019?
   - Yes *(continue)*
   - No *(go to end interview)*
   - Don't know *(go to end interview)*
   - Refused *(go to end interview)*

D. Do you handle your home's mail – for example, do you collect, review, or respond to the mail?
   - Yes *(continue)*
   - No *(go to end interview)*
   - Don't know *(go to end interview)*
   - Refused *(go to end interview)*

E. Have you gotten any mail from the Department of Commerce or Census Bureau since January 1st, 2019?
   - Yes *(continue)*
   - No *(continue)*
   - Don't know *(continue)*
   - Refused *(continue)*

F. How about any mail about the National Household Education Survey? Have you gotten any mail like this since January 1st, 2019?
   - Yes *(ask G)*
   - No *(go to H)*
   - Don't know *(go to H)*
   - Refused *(go to H)*

G. Would you be willing to share some of the reasons you did not complete this survey? *(Allow respondent a moment to think.)*

H. Are any of the people who live here age 20 or less?
   - Yes *(go to end interview)*
   - No *(go to end interview)*
   - Don't know *(go to end interview)*
   - Refused *(go to end interview)*

End interview: Those are all my questions. Thank you for your time. Have a nice day!

G.3 Qualitative Interview Codebook

Introduction

The following codebook represents the first step in analyzing the interviews from the National Household Education Survey (NHES) study of nonresponding addresses. The codebook contains 15 main codes that capture participants' experiences and opinions about who they are, how they spend their time, and why the household did not respond to NHES:2019. The codes are:

1. Who's Who
2. Time Use
3. Government
4. Education
5. Surveys
6. Technology
7. Privacy
8. Community
9. Life is Hard
10. Beliefs
11. Identity
12. Mail Delivery
13. Example Mail
14. NHES
15. Memos

Each main code contains 5-22 subcodes that capture more detailed or nuanced information about the broader topic (e.g., "daily routine" subcode within "Time Use"). The codebook also contains "adjective codes," which were always used in conjunction with main codes and subcodes to add detail, depth, and context about the discussion (e.g., "would not read" adjective code could be used with the "1st mailing" subcode). Each code has a definition, exclusion and inclusion criteria, and at least one example. Each subcode includes a definition, a mock example used for coder training purposes that illustrates the concept that the subcode captures (but does not appear in an actual interview transcript), and/or a sample text segment taken from an interview transcript to which the subcode was applied.

The codes were selected in two stages. In the first stage, the team reviewed the interview protocol, which includes the domains and sample questions. Given that senior interviewers were instructed to cover all domains in every interview, the team created a set of deductive codes that corresponded with each domain—such as privacy, understanding surveys, and time use. In the second stage, the team reviewed the memos. Based on this review, the team refined the deductive codes and added inductive codes, such as "Life is hard."

The codes were applied to segments of text in the interview transcripts. Coders were taught to apply a main code or subcode when it best represented the sentiments in that part of the discussion. When applicable, coders used a subcode; however, if the discussion did not fit under a specific subcode, yet addressed the concepts conveyed in the main code, the relevant

main code was applied. Whenever a subcode was applied, the "parent" main code was automatically applied as well. For example, if the coder applied the subcode "children" to a sentence in a transcript, the parent main code "Who's Who" was automatically applied to that same sentence.

Importantly, multiple topics often resided in a single sentence or paragraph. For example, the sentence "I help my son with his homework" draws on three subcodes "unpaid labor," "homework," and "children." Therefore, that sentence would have three subcodes applied to it. These subcodes fall under the "Time Use," "Education" and "Who's Who" main codes, so those three main codes would be applied automatically to the sentence as well.

After an initial stage of coding of a subset of the interviews, additional subcodes were added to the codebook to capture ideas that emerged from the data that were not represented in the original codes. Transcripts that had already been coded were revisited to apply these new codes.

Codes are an efficient way to organize massive amounts of textual data and help the team conduct analyses but cannot themselves answer research questions. Therefore, after all transcripts were coded, we also analyzed the coded transcript data via multiple readings of the text. These multiple reads constituted the second step of the analysis. During this step, we used the text captured in the codes to identify patterns in the data that answered the study's research questions about survey nonresponse. For example, the subcode "children" captures participants' discussions about children, but the code itself does not tell us *what* they say about children. Only through multiple readings of the text captured under "children" could the team explicate the connections between children and nonresponse to the NHES screener.

"Who's Who" Code

Definition: Any discussion that mentions the people the participant or household members interact with now or in the past. Use subcodes when participants mention a certain relationship (e.g., children, partner).

Use only the main only when the type of person the participant talks about interacting with does not have its own subcode. ***Training Example:*** "I always get my morning coffee from the same barista," or "Yesterday, a salesman stopped by the house." If the participant refers generally to his or her family without mentioning specific family members, use the main code. ***Training Example:*** I come from a large family."

Does not include:

- Individuals or groups about whom the participant has opinions but no direct interaction. ***Training Example:*** "Millennials know everything about technology." Instead, use appropriate "Community" subcodes.
- People who are related to the educational system, such as teachers, principals, or school administrators. ***Training Example:*** "Our middle school doesn't have enough teachers." Instead, use "Education" and the appropriate subcode. For interactions

with educators, use the Education subcode "interaction with educators." ***Training Example:*** "I met with my child's teacher last month."

Subcodes

current partner	An adult with whom the participant is in a romantic relationship. May or may not be married. May or may not reside in the same household. ***Training Example:*** *"My boyfriend and I met at a local bar."* ***Text Sample:*** *"[Participant's wife], she's a stay at home, so she does a ton of activities with [the kids]." (7303)*
former partner	An adult with whom the participant had a previous relationship. May or may not have been married. Former partner may be living or deceased. ***Training Example:*** *"My ex-wife just got remarried last month."* ***Text Sample:*** *"My late husband and I were living over in [city northwest of urban area in the state]." (4025)*
children	People defined by the participant as his or her child or children. May be biological, stepchildren, foster children, or adopted. May or may not reside in the same household. May or may not be currently adults. ***Training Example:*** *"My daughter loves Elmo."* ***Text Sample:*** "*I live with my son. He's a college graduate. He graduated last year, and he transitioned back home." (5195)*
grandchildren	People defined by the participant as his or her grandchild or grandchildren. May be biological, step-grandchildren, or adopted. May or may not reside in the same household. May or may not be currently adults. ***Training Example:*** *"My grandson always goes straight to the refrigerator."* ***Text Sample:*** "*My oldest grandchild is [in elementary school] so none of them have cell phones yet*." *(7523)*
other family	Other family members related by marriage, blood, or choice, such as aunts, uncles, cousins, nephews, grandparents, in-laws, godchildren, etc. May or may not reside in the same household. ***Training Example:*** *"I have seven cousins in my family."* ***Text Sample:*** *"I want to plant stuff. My great auntie, and my grandma used to do that." (7427)*

neighbors	People who reside in properties near where the participant and household lives or lived. ***Training Example:*** *"The couple that just moved in across the street are nice."* ***Text Sample:*** *"I think a neighbor's son was mugged, but far away." (4541)*
friends	People whom the participant or members of the household know in-person or online where they are mutual acquaintances or friends. ***Training Example:*** *"My friend and I go out to dinner once a month."* ***Text Sample:*** "*Yeah, none of my other friends play sports except that guy [participant's friend]." (4153)*
coworkers	People with whom the participant or members of the household share employment. May or may not work at the same physical location. ***Training Example:*** *"The boys at the warehouse where I work bring their lunch."* ***Text Sample:*** "*We meet sometimes, the girls who I work with.*" *(5429)*
family close	Participants' experiences or opinions that they or other household members communicate either in-person or by mail, phone or electronically with family frequently. Can also be used when participants talk about feeling emotionally close with family. ***Training Example:*** *"We have family dinners for all the relatives at my house every Sunday."* ***Text Sample:*** "*Yeah. We're a very close family. We're so close." (4271)*
family not close	Participants' experiences or opinions that they or other household members do not communicate in any way with family on a regular basis. Can also be used when participants talk about feeling emotionally distant from family. ***Training Example:*** *"We see the grandparents at Christmas but that's about it."* ***Text Sample:*** "*Here I have my oldest son who lives in... Where does [son] live? Ah, in [a faraway town]. I hardly see him." (5429)*

"Time Use" Code

Definition: General discussion about how participants or household members spend their time daily.

Include: Discussion about a typical weekday or weekend, as well as activities in which they would like to engage if they had more time. ***Training Example:*** "I like to do five or six different things on the weekends."

Does not include: Activities of persons others than the participant or household members.

Subcodes

paid labor	Work done for a wage; participants' or other household members' employment. Include any discussion about the participants' and household members' job or careers. Include discussion about the place of labor. May be past or present. Do not include discussions of future career ambitions; instead, use "career ambition" under "Beliefs." ***Training Example:*** *"My son works during the week at a local fast-food restaurant."* ***Text Sample:*** "*I had the past week where I had to work Saturday, but that's just because we had crazy orders come in.*" *(4289)*
unpaid labor	Chores, errands, childcare, yard work done by participants or household members; activities that contribute to the running of the household. Unpaid labor are activities that one theoretically could pay someone else to do (childcare, tutor, garden, cook, clean, etc.). ***Training Example:*** *"My spouse and I take turns reading the kids bedtime stories and doing baths."* ***Text Sample:*** "*Cooking I hate. Yeah, I think it's a big time-sucker of mine. I'm either making breakfast or I'm packing lunches or I'm making dinner or I'm shopping for food that they eat in two days.*" *(5103)*
just for fun	Any activity in which participants or members of the household engage for entertainment or relaxation purposes such as hobbies. ***Training Example:*** *"I love to read mysteries."* ***Text Sample:*** *"Yes, soccer is a passion for my husband... now we're partners and [later this month] there's another game in [urban city in the state], and the whole family is going to soccer." (5305)*
daily routine	Activities such as personal hygiene, exercising, or praying/meditating that do not relate to running a household. Include only activities that are done on a daily or almost daily basis by participants or household members. Daily routines are activities that one must engage in

	personally in order to obtain the benefit such as brushing one's teeth or exercising. They cannot be outsourced like unpaid labor activities. ***Training Example:*** *"I pray every night before I go to bed."* ***Text Sample:*** "*Well, Monday, through Friday I'm getting up in the morning, my son's getting ready for school, brush our teeth, and I take him to school.*" *(7075)*
volunteer activities	Any activity in which participants or members of the household engage without pay in order to further a larger civic or personal purpose. ***Training Example:*** *"I am the Girl Scout leader of my daughter's troop."* ***Text Sample:*** "*Then my sister got me into quilting stocking caps. And then I thought—well, because she does it for the homeless shelter—and I decided to do it for cancer survivors, or those that are in treatment. And I had done maybe several bags of nice soft, no seams caps." (4025)*
time stamp	Discussion of what time participants or household members wake up, what time they go to bed, how long they spend working, and/or how long they spend doing other activities. This subcode applies to any discussion that talks about how long an activity takes or the timeframe in which it occurs. Participants do not have to say actual time but can use descriptors such as "early in the morning" or "late at night." ***Training Example:*** *"My wife doesn't get home from work until 8 pm."* ***Text Sample:*** "*And I leave at 8:30 in the morning and I get out. Depending on if I have any appointments or anything, I get in about 3:00, 2:30 or 3:00, and usually somebody's gone and picked the mail up and brought it in." (4167)*
busyness	Discussion of how participants or household members have a lot of activities and/or responsibilities. Participants can directly say that they are busy or they can say that they have "little time." Do not include interviewers' assessments from the memos or your own opinion of whether the person seems busy; include only participants' comments and their perceptions about being busy. ***Training Example:*** *"I never seem to have enough time to get things done."* ***Text Sample:*** "*Any one of us could, but you know we're so busy, our house here is so crazy. I'm the only one who's up in the morning, obviously here. Then they get up around noonish because they work until graveyard.*" *(6535)*
schedule erratic	Discussion about how each day is different for participants or household members; participant has a hard time articulating what an average day looks like. Do not include interviewers' assessments from

	the memos or your own opinion of the person's schedule; include only participants' comments and their perceptions about their schedule. ***Training Example:*** *"Some days I drive for Uber and other days I do pick-up work for a local company. My Monday through Friday looks different every week."* ***Text Sample:*** *"My schedule changes according to the needs of the department. I work at an emergency room. So if there's a call-off? I might have to come in. I typically work evenings, like 3:00 to 11:00, or 3:00 to 3:00. I could work any shift." (7015)*
schedule predictable	Discussion about how schedule looks similar day-to-day or week-to-week for participants or household members; participant describes an average day. Do not include interviewers' assessments from the memos or your own opinion of the person's schedule; include only participants' comments and their perceptions about their schedule. ***Training Example:*** *"I work 8:00 am to 5:30 pm at a hospital six days a week."* ***Text Sample:*** "*AA [Alcoholics Anonymous], definitely. During the week, Monday through Friday, I'm always up doing something. It usually centers around all the stuff I do there. When I go back there at 4:00 in the afternoon, I don't just set the chairs up and make the coffee. I set the chairs up, make the coffee, and clean all three bathrooms.*" *(5449)*
alone	Discussion where participants talk about a span of time that they spend with no people present. They may speak about it as time alone, in solitude, or by themselves. Participants may welcome this span of time or they may express loneliness. ***Training Example:*** *"I love my commute home because I have time by myself."* ***Text Sample:*** "*When I go home, I don't really have time to be social. So I just go to my room and relax. I really need to recharge the batteries. Because I leave the house when it's dark pretty much and I come back when it's dark.*" *(5685)*

"Government" Code

Definition: General discussion about the business of operating the United States, states, or local municipalities. ***Training Example:*** "I don't pay attention to the government."

Do not include: Discussion about the government or politics related to the NHES or nonresponse study. Use appropriate NHES codes. ***Training Example:*** "I think 'the Department of Commerce' on the envelope is confusing."

Subcodes

Department of Education	Discussion related to the federal Department of Education. ***Training Example:*** *"The Department of Education is run like a business."* ***Text Sample:*** *"I don't have any more kids in school so [the Department of Education] doesn't bring anything to my brain. Maybe when [my granddaughter] starts going to school." (6331)*
United States Postal Service	Discussion related to the United States Postal Service. It can be about specific people such as the household's mail carrier or general discussion of the USPS as an institution. ***Training Example:*** *"In 10 years USPS is going to be out of business."* ***Text Sample:*** "*My familiarity with mailing and using the postal service, which I do quite frequently because of what I do.*" *(6535)*
Census	Discussion related to the Census or U.S Census Bureau. ***Training Example:*** *"I don't think 2019 is a Census year."* ***Text Sample:*** "*Well, speaking of the Census, that's what I'm telling you—that they want to know how many people there are in the neighborhood or in the area you live to know if schools are missing or what's missing in the area*." *(4131)*
other federal	Discussion about the federal government that is not covered by other subcodes. ***Training Example:*** *"The government doesn't work for the people."* ***Text Sample:*** *"Government should be there at a federal level to maybe protect you from worrying issues, to create the policies for trade, stuff like that." (7329)*
state or local government	Discussion related to past or present local (town, community, county, or state) government. ***Training Example:*** *"Our town's council meets every Tuesday night."* ***Text Sample:*** *"[My father] was a Party ward leader."(7627)*
voting and elections	Discussion related to participating or declining to participate in local and/or national elections. ***Training Example:*** *"It is important to my family that I vote in the next election."* ***Text Sample:*** "*Well, voting should be a priority because who is elected to the government depends on it.*" *(4131)*

government knows	Discussion about what the federal or local government knows about individuals. ***Training Example:*** *"The government already has information about my family."* ***Text Sample:*** "*Recently, I've heard from people that the government knows or has shared information between different government offices.*" *(4711)*
government money	Discussion about how the federal or local government spends money. Include discussion of taxes in this subcode. ***Training Example:*** *"The government spends way too much. That's why we have a huge deficit."* ***Text Sample:*** *"I absolutely hate and despise any form of taxes." (5203)*
government targeted	Comments that reveal fear or a sense of being persecuted by the federal or local government. ***Training Example:*** *"I feel like the government wishes I wasn't in this country."* ***Text Sample:*** "*I personally feel like the government has my phone tapped.*" *(5265)*
role of government	Discussion about what role the government should play in people's lives and/or what the government should and should not be responsible for. ***Training Example:*** *"The government should forgive everyone's student loans."* ***Text Sample:*** *"Because, you know, cities need a lot of things. Sidewalks, the streets. A lot of holes in the streets. Maybe the government comes—hey, we need help. The city needs to help fix the street, fix this, a lot of things." (6681)*

"Education" Code

Definition: General discussion of the opinions of and experiences with education concerning the participant, household, or people important to them.[19] Can include thoughts about education in general. ***Training Example:*** "I am always talking to my neighbors about our local schools."

[19] People who are important to participants and/or household members may be friends, other relatives not living in the household, or community members with whom participants feel an affinity. They may also be people who the participant and/or household members do not know yet still feel influenced by what happens to them, such as celebrities and subjects of news stories.

Do not include: Discussion about education related to NHES or nonresponse study. Use appropriate NHES codes. ***Training Example:*** "I don't like that the survey asks what grade my child is in."

Subcodes

preschools	Experiences with or opinions about public or private preschool or pre-K programs. Can be about schools in the area or in general. ***Training Example:*** *"My nephew learned a lot in Head Start."* ***Text Sample:*** *"His preschool is wonderful. His teachers are wonderful." (7779)*
public schools	Experiences with or opinions about K–12 **public** schools. Can be about schools in the area or in general. ***Training Example:*** *"Public schools cost the taxpayers a lot of money."* ***Text Sample:*** "*I grew up in public schools, and I think they prepared me very well for the future, going to college." (5685)*
private schools	Experiences with or opinions about K–12 **private** schools. Can be about schools in the area or in general. ***Training Example:*** *"Private schools in this area are not that good."* ***Text Sample:*** "*Then I went to a private school, but it was a lot of money. And I felt the same way, like the teachers were not acclimated to me.*" *(6587)*
charter schools	Experiences with or opinions about K–12 **charter** schools. Can be about schools in the area or in general. ***Training Example:*** *"My town experimented with charter schools several years ago."* ***Text Sample:*** "*I've had a very different experience with education. Didn't like the attitude of the school for my son, based on the administration. Chose a charter school because of that.*" *(4129)*
bachelor's or graduate degree programs	Experiences with or opinions about bachelor's or graduate degree programs. Can be about schools in the area or in general. ***Training Example:*** *"I wanted to go back and get my bachelor's degree."*

	Text Sample: "*Well, first of all, I'm the first one to actually graduate high school in my family. And then, of course, first one to actually go to college, university.*" *(4655)*
all other postsecondary	Experiences with or opinions about any other postsecondary education, such as associate degree programs, certificate programs, continuing education courses, etc. Can be about schools in the area or in general. ***Training Example:*** *"I am currently studying to be a welder."* ***Text Sample:*** "*And then I went to [technical school], which I got my associate's in something, but it translates over to refrigeration. I went to school for refrigeration. A labor trade, I guess.*" *(4153)*
homeschool	Experiences with or opinions about homeschooling, including why they choose/chose to homeschool. ***Training Example:*** *"Homeschooling is important to my husband."* ***Text Sample:*** "*The only hesitation that I have with online schooling or homeschooling is them not getting the social experience with a public school, or even a private school, setting.*" *(4277)*
homework	Experiences with or opinions about homework. Can be about schools in the area or in general. ***Training Example:*** *"I can't believe that my first grader has so much homework."* ***Text Sample:*** "*90% of what they do at home is homework. Because they spend—which is my biggest downfall with school in general—they spend eight, nine hours a day at school, and they come home and do another three or four hours of homework. And then they go to bed, rinse and repeat.*" *(4209)*
K–12 standardized tests	Experiences with or opinions about K–12 standardized tests. Can include district or state tests that occur in K–12 or Advanced Placement exams (AP). Does not include college admissions tests (e.g., PSAT, SAT, ACT, GRE). Can be about tests/schools in the area or in general. If someone talks about standardized tests or standardized testing and there is no other context as to what the specific test is, use this subcode. ***Training Example:*** *"Standardized tests don't help kids learn."* ***Text Sample:*** *"For me, I have more issues with just generalized testing and how education is more focused on the testing aspect*

	of it much more than when we were in schools. I think I have more of an issue with that than just town education and all of that." (5103)
postsecondary standardized tests	Experiences with or opinions about standardized tests taken for college or graduate school admission or after high school graduation. Tests can include the PSAT, SAT, ACT, GRE, MCAT, GMAT, LSAT or other professional national tests. Include licensing exams such as the bar or NCLEX. ***Training Example:*** *"I did horrible on the SAT so I didn't get into a good college."* ***Text Sample:*** "*But then I had the kids that were getting A's and B's in school, couldn't pass the science the first time. Or did not score great on the ACT. He didn't take the ACT.*" *(7471)*
school safety	Experiences with or opinions about school safety, such as bullying, violence, shootings, or carrying weapons. May be general opinions, actual events, fear of events, or actions taken to prevent such events (such as metal detectors). Can be about schools in the area or in general. ***Training Example:*** *"My nephew was beat up every day by an older kid in his homeroom."* ***Text Sample:*** *"When I was at school, none of the doors were locked. You just came and went. It was just totally different then. You didn't have to worry about, you know, bomb threats and stuff like that." (5449)*
school culture	Experiences with or opinions about school environment that do not have to do with safety issues. Can be about schools in the area or in general. ***Training Example:*** *"Everyone at the school values things other than book learning, like being kind and a good friend."* ***Text Sample:*** *"But I always made sure they was in a good school that I thought was good for them, and they wore uniforms throughout. And that helped out a lot with the peer pressure." (4495)*
afterschool activities	Experiences with or opinions about organized activities that take place afterschool, such as after-school programs, dance classes, Cub Scouts, sports, or music. Can include activities done at the school after school hours or activities done at for- or non-profit organizations (e.g., dance studio, soup kitchen, community pool). Include organized activities that take place in

	the home, like private music lessons or piano practice. Can be about schools/activities in the area or in general. ***Training Example:*** *"My kids take swim lessons on Mondays and karate on Wednesdays."* ***Text Sample:*** "*Well, yeah. They love biking and gymnastics and soccer and basketball and drums." (5103)*
subjects	Experiences with and opinions about what is taught or not taught during the school day. Can be about schools in the area or in general. ***Training Example:*** *"There is too much focus on math and science and not enough on teaching kids how to read well."* ***Text Sample:*** *"Kids know computers now. We don't need them to teach a computer class." (4639)*
teachers	Opinions about teachers, their qualifications, their pay, and their responsibilities. Can be about teachers in the area or in general. Include opinions about teacher quality. For specific interactions with teachers, use subcode "interaction with educators." ***Training Example:*** *"The teachers try but they have so many things on their plate."* ***Text Sample:*** "*I feel like teachers that graduate aren't held to a high enough standard. There's always a need for them, so they're all going to get hired because they're dressed nice or are nice the first couple of days." (5707)*
interactions with educators	Interactions with people in the education system, such as teachers, principals, or school counselors. Any discussion about parental involvement in the child's school (e.g., attending parent-teacher or PTA meetings, chaperoning field trips) belongs in this code. ***Training Example:*** *"I try to meet my son's teacher at the beginning of the year."* ***Text Sample:*** "*Yes, the teachers call to give us reports, or they call to give us some advice about how she's progressing and how to get them to practice more with what they are behind in.*" *(4017)*
quality of education	Experiences with or opinions about how well subjects and skills are being taught in schools. Can be about schools in the area or in general. Can be personal or secondhand experience or general thoughts about the issue.

	Training Example: *"We moved to this neighborhood because the schools are such high quality."* ***Text Sample:*** *"I don't like the [new] school's curriculum for that. It just doesn't even compare to what he was getting at the other school." (7075)*
importance of education	Experiences with or opinions about how useful and/or valuable education is. Can be personal or secondhand experience or general thoughts about the issue. Use this subcode when participants talk about the benefits of education. ***Training Example:*** *"Giving your child a good education is the most important thing."* ***Text Sample:*** *"Well liberal arts to me is important because I think when you go to college you need to get into a curriculum or agenda where you're interacting with a number of different people from a number of different ethnic backgrounds, races." (5463)*
barriers to education	Experiences with or opinions about obstacles to starting, continuing, or finishing an educational degree or credential. ***Training Example:*** *"My son has severe learning disabilities and no matter what the district did it didn't help."* ***Text Sample:*** *"Well, I got pregnant. Then I know I needed education, and I needed my schooling. But it was hard for us because we were poor. So I had to go to school and work and all at the same time. I didn't get to walk the stage because I was a person over forty." (4043)*
cost of education	Experiences with or opinions about spending money to pursue education, such as student loans, private school tuition for K–12, or fees associated with K–12 activities such as field trips. Can be personal or secondhand experience or general thoughts about the issue. ***Training Example:*** *"I am still paying off my student loans and I graduated 10 years ago."* ***Text Sample:*** *"When they got to high school age, we did give them a choice [between public and private], because schools were pretty expensive." (7355)*

"Surveys" Code

Definition: General discussion about surveys and research. Can include opinions about and reactions to particular surveys or surveys and research in general. ***Training Example:*** **"**I get more and more requests to do surveys."

Does not include: Discussion specifically about the NHES or nonresponse study. Use appropriate NHES codes.

Subcodes

experience with surveys	Actual experience with surveys of any type, including marketing surveys. Also use this subcode when participants say they do not do surveys. ***Training Example:*** *"I took a survey a few months ago after I flew Delta."* ***Text Sample:*** "*No, I never did a survey, but my daughter did. She did a lot with the community. She did. I'm just one of those bored widows. I was too busy doing me.*" *(4043)*
mode of survey	Opinions about the mode of survey contacts (e.g., emails, letters, phone calls) or about preferred ways to respond to surveys, such as preferring web or paper-based surveys. Include discussions about survey platforms, such as doing surveys via Facebook or other apps, opt-in panels, etc. ***Training Example:*** *"Paper-based surveys are easier to read."* ***Text Sample:*** "*Well, I think it would be the regular written form where I can read, where I can see clearly. Because I don't have Internet there. No, no. If you don't have access to the Internet or if you don't know if the page is correct or, what's its name, well, yes, it's better with a form.*" *(4017)*
sponsor of survey	Opinions about who is sponsoring or conducting the survey (such as the government, a market research firm, or a foundation) and how that influences participation. ***Training Example:*** *"I don't do any surveys from the YMCA."* ***Text Sample:*** "*Like if an ad agency called me and asked me to do a survey or something, and it's about personal information, I wouldn't do it.*" *(5441)*
topic of survey	Opinions about the topic of the survey (customer satisfaction, politics, local issues) and how that influences participation. ***Training Example:*** *"It's important to do surveys about my town and how we should spend our surplus."*

	Text Sample: *"I think in the past year, I got a food survey. And that was important because they were talking about quality of food and quality of vegetables and fruits. So, that was important because it kind of affected the way we eat." (4399)*
why complete	Reasons why participant would or has completed surveys. Can also be used when participant speculates on why other people complete surveys. ***Training Example:*** *"I feel like I am giving back to my community when I take a survey."* **Text Sample:** *"I did one last week when I went to [a fast-food restaurant]. It took five minutes, so that's why I was like, 'Hell yeah, I'll take a $50 gift card for five minutes.'" (4289)*
why not complete	Reasons why participant would not or has not completed surveys. Can also be used when participants speculates on why other people do not do surveys. ***Training Example:*** *"I don't do surveys anymore because they always take too long, and they ask the same question over and over."* ***Text Sample:*** *"Millennials and people like that don't really want to participate in a lot of things. They don't want to deal with door-to-door solicitation. Which, we just thought that was interesting, because you know with my parents, they're different that way." (4277)*
benefits of surveys	Opinions about ways surveys are useful or helpful that are not described as a reason why someone would or not would not do a survey. ***Training Example:*** *"Surveys can help others learn about what the greatest needs are."* ***Text Sample:*** *"Like the Census? Yes? I think it is beneficial, because we should be counted, right? The Census is for them to know how many of us live here, isn't it?" (4187)*
drawbacks of surveys	Opinions about ways surveys are problematic that are not described as a reason why someone would or not would not do a survey. ***Training Example:*** *"Surveys are a waste of time."* ***Text Sample:*** *"It's a good and bad thing. Well, I mean, they trying to receive what's going on, that's the good thing about it. But once they do see what's going on, I don't feel like it's too much of an effect on the community." (7057)*

incentives	Opinions about the use of incentives to encourage people to participate in research. Do not include discussion about the $5 received with the NHES; use the "five-dollar incentive" subcode for those discussions. ***Training Example:*** *"Getting a gift card encourages me to do the survey."* ***Text Sample:*** *"Because it seems like every time you be like, 'Hey we'll give you a $25 gift card, just answer these couple questions.' I'm like, 'All right, I'm game. I'll do it.'" (5703)*

"Technology" Code

Definition: General discussion of technology and how participants, household members or people important to them use it. ***Training Example:*** "I remember when nobody had a computer."

Subcodes

Amazon	Experiences with and opinions about any service or product from Amazon, such as Amazon.com, Alexa, or Echo. ***Training Example:*** *"I buy everything on Amazon."* ***Text Sample:*** *"Amazon has better data on the populous than the government does at this point because they mine data." (7303)*
Google	Experiences with and opinions about any technology from Google, such as Gmail, Google Home, Nest, Google maps, or the search engine function. ***Training Example:*** *"I always Google someone before I go on a date."* ***Text Sample:*** *"I use Google News. It corroborates all of my topics." (5479)*
tech devices	Experiences with and opinions about tech devices, such as computers, laptops, tablets, or cell phones. ***Training Example:*** *"I rarely use my computer; I do everything on my smart phone."* ***Text Sample:*** *"Everybody gets a Chromebook, and they bring it home, back and forth with them to school. They submit an assignment and it just goes, it emails it right to the teacher." (5103)*
Internet	Experiences with and opinions about the Internet or online activities, such as emailing, visiting websites, or playing multi-user games. Do not include online financial activities or social media use.

	Training Example: *"I spend way too much time online."* ***Text Sample:*** "*I watch a lot of sermons online, YouTube." (6535)*
money online	Experiences with and opinions about online financial activities, such as banking and bill paying. ***Training Example:*** *"I don't trust putting my bank account number online."* ***Text Sample:*** *"I do all my banking and have for years online ." (4025)*
social media	Experiences with and opinions about Facebook, Snapchat, Instagram, Twitter, and other social media outlets. ***Training Example:*** *"I keep in touch with my family through Facebook."* ***Text Sample:*** *"Facebook, I have a site so like if somebody wanted to be able to find me, they could. But I have not updated in [several years]." (7055)*

"Privacy" Code

Definition: General discussion about the opinions and experiences with privacy by the participants, household members or people important to them. ***Training Example:*** "People should care more about their privacy."

Subcodes

data security	Experiences with and opinions about how personal information is or is not protected. Include discussion of identity theft or hacking and any discussion about online security including passwords. ***Training Example:*** *"It was a nightmare when someone stole my credit card information."* ***Text Sample:*** *"I have identity theft protection. That's about all I got." (5203)*
keep to themselves	Any discussion about maintaining **physical** distance from others or thinking that it is important/useful to do so. ***Training Example:*** *"Good fences make good neighbors."* ***Text Sample:*** "*I leave the bedroom door shut. That means you don't come in unless you knock." (7597)*
nobody's business	Any discussion about maintaining **personal and/or psychological** distance from others or thinking that it is important/useful to do so.

	Training Example: *"People don't need to know my inner most thoughts."* ***Text Sample:*** "*Privacy means solitude of your own matters, to me." (5265)*
security precautions	Experiences with and opinions about taking steps to address or maintain the physical safety of themselves, other people, or a physical dwelling. ***Training Example:*** *"I make sure I put security signs in the yard so people can see them."* ***Text Sample:*** *"I've been thinking of getting the Ring doorbell installed here so I can keep a better eye on the neighborhood." (6221)*
access to information	Experience with and opinions about how personal information can or cannot be accessed by corporations and nongovernment organizations. For talk about government access to data, use "government knows" subcode instead. ***Training Example:*** *"Kroger knows exactly what I buy my family every week."* ***Text Sample:*** *"I think anyone can really buy out our information. My information is through my employer, my information is through my school." (4639)*
protect information	Experiences with and opinions about taking steps (or steps that one *should* take) to protect or secure digital or paper records that have personal information. Do not include how people get rid of mail. Instead, use "mail rid" subcode. ***Training Example:*** *"I change my passwords once a month."* ***Text Sample:*** "*I always keep the state-of-the-art Norton stuff." (7627)*
not a concern	Any discussion about privacy not being a concern. ***Training Example:*** *"I'm not worried about my privacy at all."* ***Text Sample:*** "*I'm not really worried about my information getting out there. I have nothing to hide." (5479)*

"Community" Code

Definition: General discussion about how the participant, household members or other people important to them interact with and perceive the environment outside the household. The goal of the code is to understand how people define community, their opinions and

experiences within communities, and how connected, if at all, they feel to any community. ***Training Example:*** "It's important to be part of the community."

Does not include: Any discussion of specific activities, such as the participant's job or hobbies. Use the "Time Use" code and subcodes.

Subcodes

nature	Description of or opinions about outdoor areas with any type of vegetation. Also include discussions of "peace and quiet." ***Training Example:*** *"I wanted to live in a place with trees."* ***Text Sample:*** *"I'll sit on my patio and listen to a tape or read. I just sit down and enjoy nature." (5409)*
general town discussion	Discussion of the area in which the participant and household members live or lived. This subcode includes how long they have lived in the area and discussions of how that area has changed over time. ***Training Example:*** *"Things in this town have changed a lot over the last 20 years."* ***Text Sample:*** "*We didn't consciously say, 'Oh, I want to live in [city 1], or [city 2] or [city 3].' That's... the job was here, and we needed to be close to our jobs." (4167)*
others' communities	Discussion of the neighborhoods, town or communities of people who are not the participant or household members. ***Training Example:*** *"Down of here is a suburb that is growing really fast."* ***Text Sample:*** "*I care about the Third World countries and stuff over there." (7401)*
news	Discussion of methods of receiving information about current events. ***Training Example:*** *"I used to listen to NPR, but now I watch NBC Nightly News."* ***Text Sample:*** *"I get the news on my phone. So, I do that, and then too, I watch the news. In fact, that's what I was doing too, besides working when you guys came. So I always watch the 5:30 national news." (4373)*
what community is	Discussion of how they define community and what community means to them. ***Training Example:*** *"Community doesn't have to be people you see every day. It can be people you feel a connection with no matter where you are."*

	Text Sample: *"When I think community, I think everyone from our apartment complex meeting at the pool and having a barbecue." (4209)*
sense of belonging	Discussion of feeling connected to members of a certain group or groups; an affiliation with others. ***Training Example:*** *"I feel very connected to my bingo group."* ***Text Sample:*** *"Since I'm not from here, I've made a lot of friends, which is really nice. [The co-op], they do a good job of putting everyone together." (7303)*
outsider	Discussion of feeling disconnected from other people or groups. Include discussions about feeling judged by others or feeling alone or lonely. ***Training Example:*** *"I don't really relate to anyone my age."* ***Text Sample:*** *"I'm just not that much of a social mom person, so I really couldn't take some of the stuff there. Just couldn't do it anymore." (5103)*
neighborhood safe	Discussion feeling safe at home and/or in the neighborhood or that the neighborhood experiences little to no crime. Can be used for current or past neighborhoods. ***Training Example:*** *"I don't even lock my doors. The neighborhood is so safe."* ***Text Sample:*** *"I think everybody on this street, they pretty much look out for each other and watch out for each other." (4399)*
neighborhood unsafe	Discussion of feeling unsafe at home and/or in the neighborhood or that the neighborhood experiences crime. Can be used for current or past neighborhoods. ***Training Example:*** *"Just yesterday there was a drive-by."* ***Text Sample:*** *"Nobody knocks on my door. Everybody else, they call if anybody is coming. 'Cause this is a dangerous area." (4495)*
segregation	Discussion of observing themselves or other people of a certain race, ethnicity and/or nationality living in a defined area and/or not frequently interacting with people of other races and ethnicities. Also include general opinions that are pro-segregation. ***Training Example:*** *"Only White people live in that neighborhood."* ***Text Sample:*** *"It is very siloed. In the [area of town], it's predominantly Puerto Rican. And the [other area of town], Italian. Up the hill, African-Americans. So, that's very reductive, but that's where it is." (5195)*

diversity	Discussion of observing themselves or other people of varied races, ethnicities and/or nationalities frequently interacting with people of other races, ethnicities, and/or nationalities. Do not include opinions about diversity, only include experiences; code opinions under the "diversity/inclusion" subcode. ***Training Example:*** *"I am glad my child has friends of different races."* ***Text Sample:*** *"Ironically, that a city that is perceived as so conservative, they've been so okay with gay lifestyles." (7149)*
SES	Discussion of socio-economic status or class. ***Training Example:*** *"Since the plant closed, the surrounding neighborhoods have gotten a lot worse off."* ***Text Sample:*** *"You could say that I live in a lower sect of society, but I enjoy the people I'm around. Life is way, way bigger than putting a money value on something. You can have all the money in the world and still be a really unhappy person." (4289)*

"Life Is Hard" Code

Definition: General discussion about barriers and obstacles participants, household members or people important to them face or have faced in life and their reactions to them. ***Training Example:*** "I had it really rough growing up."

Subcodes

money concerns	Discussion of current or past financial burdens, concerns about paying bills, debt, making repairs, buying needed items, saving for college or retirement, or lower-than-desired wages. Include worry about future financial burdens. ***Training Example:*** *"My credit card debit is over $10,000."* ***Text Sample:*** *"My parents did not have the resources to give us an allowance and even like save for college and everything." (5463)*
money helps	Discussion of how money can increase one's sense of security, bring pleasure, or mitigate life's difficulties. ***Training Example:*** *"I make 120k a year so a car repair bill doesn't throw me off."* ***Text Sample:*** *"Then I went from being caregiver to office worker. I'd make that little extra money." (7779)*
incarceration	Discussion of time spent in jail or prison; discussion of arrests and court appearances.

	Training Example: *"I was arrested for armed robbery."* ***Text Sample:*** *"I did [several years of time] in prison for a violent crime." (6535)*
police	Discussion of interactions with or observations of the police. Can be positive, negative, or neutral. Can be general opinions about the police or specific experiences. ***Training Example:*** *"When we called 911 it took the police over an hour to come to the house."* ***Text Sample:*** *"The news makes me aware and probably makes me overprotective, because police can't protect you." (7075)*
medical conditions	Discussion of current or past, short- or long-term physical or mental health afflictions. ***Training Example:*** *"My son has ADHD."* ***Text Sample:*** *"She has a condition that is difficult for her. So, it's like... it's some kind of autism, and then it's hard for her to concentrate." (5429)*
medical treatment	Discussion of treating or attempting to treat physical or mental health afflictions, now or in the past. ***Training Example:*** *"She needs to take four different pills."* ***Text Sample:*** *"I fell and took the skin off, and then a week and a half later it becomes blood infected, turns red. So then I'm on antibiotics." (4025)*
illegal drug use	Discussion of taking, selling, or buying illegal drugs, now or in the past. Do not include marijuana or CBD oil products. ***Training Example:*** *"I was busted for coke."* ***Training Example:*** *I think it's just once the drugs got involved the neighborhood lost a lot of [safety]." (7471)*
marijuana and alcohol	*Discussion of using marijuana, CBD oil, or alcohol.* ***Training Example:*** *"I smoke pot to relax."* ***Text Sample:*** *"He went to [other public middle/high school]. He got kicked out due to having marijuana on him." (6081)*
unemployment	Discussion of losing a job or not being able to secure a job. ***Training Example:*** *"I couldn't find a job after the layoffs."*

	Text Sample: *"Right now I was trying to look for work again since I've been out of work for a while." (7481)*
multiple jobs	Discussion of holding multiple jobs simultaneously. ***Training Example:*** *"My parents work at the restaurant during the day and at night they clean offices."* ***Text Sample:*** *"Mondays, Wednesdays, and Fridays, typically I'm at my [personal care assistant] job. And generally, Tuesdays and Thursdays, I'm at [another job]." (5265)*
death or dying	Discussion of any person or pet that has passed or is near death. ***Training Example:*** *"Once my mother died, my dad came to live with us."* ***Text Sample:*** *"Before I lost my daughter, three months before that, I lost a sister." (4043)*
exhaustion	Discussion of exhaustion, stress, burnout, or feeling down that is being experienced or has been experienced by the participant, household members, or persons important to that household. When depression or anxiety has been diagnosed by a health professional, use subcode "medical conditions" instead. ***Training Example:*** *"I travel so much for work that I am too tired to look for another job."* ***Text Sample:*** *"I work full time and go to school full time. So, I'm like always tired." (4639)*
anger	Anger, exasperation, impatience, or resentment expressed by participant, household members, or persons important to them. ***Training Example:*** *"The way the youth today treat their elders makes me sick."* ***Text Sample:*** *"Anger's a nice fire and it motivates me." (7627)*
trouble reading	Discussion of difficulties with reading and/or writing in any language (e.g., due to low literacy, low English proficiency, or poor eyesight). ***Training Example:*** *"I like the pictures because I can't read."* ***Text Sample:*** "*I see that as blue, but my eyes are really bad." (6287)*
resilience	Discussion of being able to recover from a setback. ***Training Example:*** *"I had enough grit to raise three kids on my own."*

	Text Sample: *"I used to just walk out of class. There was never a day I was not in the office, never a freaking day, never a freaking day not in the [principal's] office. But I finished [school]." (6081)*
life is good	Discussion of how life is going well for participants, household members, or persons important to them. ***Training Example:*** *"I am really happy with the way things are going right now."* ***Text Sample:*** *"Here in America, they feed them in school, they do everything... In fact, it's just like a dream come true." (4705)*

"Beliefs" Code

Definition: General discussion about what participants, household members, or people important to them believe or value. Can also be about the underlying principles that influence how they prioritize their time. ***Training Example:*** "Fighting climate change is really important to me."

Does not include: General thoughts about education or government, which will be captured in the "education" and "government" codes. ***Training Example:*** "Education is important; "There are three branches of government."

Subcodes

religion	Discussion of attendance at places of worship. ***Training Example:*** *"I was raised Catholic, but I stopped attending church in college."* ***Text Sample:*** *"My daughter and her family go to a church that meets on Friday night." (4025)*
diversity/inclusion	Discussion of believing that it is beneficial to be inclusive of individuals representing more than one national origin, color, religion, socioeconomic stratum, sexual orientation. ***Training Example:*** *"Everyone benefits when you have people from different backgrounds working with each other."* ***Text Sample:*** "*It has people from all the neighborhoods. You see all the colors, smells, and tastes there. All the cultures. Yes, I love it." (5305)*
prejudice	Discussion of instances of prejudice, discrimination, or bigotry (such as racism, sexism, homophobia, religious intolerance, etc.). ***Training Example:*** *"People boycotted when a new mosque was built."*

	Text Sample: *"You're assuming just because one person of color acts a certain way, or looks a certain way, they all are like that." (7075)*
patriotism	Discussion of loyalty to or support of the United States as a nation; support for ideals of the United States no matter how those ideals are defined. ***Training Example:*** *"Serving your country is the highest calling anyone can have."* ***Text Sample:*** *"I'm in America, one of the best countries in the world. I feel very blessed, and I could be somewhere worse than here." (6221)*
military	Experience with or opinions about the military or military service (in the Army, Navy, Air Force, Armed Guards, etc.). Can also refer to general talk about military forces. ***Training Example:*** *"All of my cousins went into the Army."* ***Text Sample:*** *"You have to bring a diploma in here in order to stay here, so she graduated and went into the military." (7231)*
trust others	Expressing confidence or hope in other people, organizations, or systems. ***Training Example:*** *"The police do everything they can to protect this community."* ***Text Sample:*** *"I think [the news outlets are] telling the truth." (7481)*
distrust others	Expressing skepticism, doubt or suspicion about other people, organizations, or systems. Use this subcode when people talk about scams or suspect that something is a scam. ***Training Example:*** *"The government just takes your money and doesn't give you anything in return."* ***Text Sample:*** *"Don't make it a point to complete government surveys... I don't trust them." (4365)*
distorted info	Belief that information including research can easily be distorted or manipulated to further an individual or an organization's agenda. ***Training Example:*** *"People manipulate information so it supports their own point of view."* ***Text Sample:*** *"As soon as I start to hear the big party rhetoric on either side, I'm like, I could never watch CNN, and I could never watch Fox. Because it's all rhetoric." (7055)*

minimalism	Deemphasizing possessions or belongings; decluttering. ***Training Example:*** *"I want to have less stuff. The less you have, the less you have to worry about."* ***Text Sample:*** *"My dream is to go to an island and live on a beach in some little rundown little hut." (4289)*
career ambition	Discussion of long term or future career goals and aspirations. Do not include work activities that will occur within a year or two, such as promotion expected to occur in 2020. ***Training Example:*** *"My daughter wants to be a doctor when she grows up."* ***Text Sample:*** *"I need my GED so I can go to hair school." (7275)*
local not global	Discussions that reveal the sense that a person can affect things on a local scale but not on a national or larger one. ***Training Example:*** *"Protesting with my neighbors about the new road was important but that doesn't mean the state capital cares about us."* ***Text Sample:*** *"I mean local, I think that [voting] matters. But nationally, I don't think so." (5441)*
what's wrong	Discussions that reveal what issues or policies they believe are hurting some aspect of the life in the U.S. ***Training Example:*** *"Everything is so expensive these days."* ***Text Sample:*** "*I don't believe that our votes [matter]—like a democracy is not as pure as people try to make it seem." (4639)*

"Identity" Code

Definition: General discussion about demographics that are salient to participants, household members, or people important to them. It does not have to be discussion about the participants' personal identity. ***Training Example:*** "Being from the Midwest is important to me."

Subcodes

race/ethnicity	Experiences related to and opinions about race (such as Asian or African American) or ethnicity (such as Mexican or Hispanic). Topics include Black Lives Matters, pride in one's race, experiencing racism or oppression or microaggressions. Does not have to be limited to the participant's own race or ethnicity.

	Training Example: *"People should take the Black Lives Matter movement more seriously."* ***Text Sample:*** *"I went through my stages of—I was ashamed of being Hispanic at one time—so I would tell people that I'm half White, you know." (6221)*
immigration	Discussion of the immigration status or migration of the participant, household members or persons important to them. Do not include opinions about whether immigration is a good or bad thing. ***Training Example:*** *"My family is from Guyana."* ***Text Sample:*** *"There are a lot of people who don't have papers, so they think that giving [the government survey] that kind of information is telling Immigration." (4711)*
citizenship	Discussion of what it means to be a U.S. citizen or how the citizenship status of the participant, household members or persons important to them affect daily life. ***Training Example:*** *"My mom's goal was for us to be U.S. citizens."* ***Text Sample:*** "*We are citizens. We do not worry about the letter [from the government]." (6487)*
dual identity	*Discussion of what it means to be a dual citizen, being raised outside the U.S., or having family abroad (as in their country of origin) in the context of the participant feeling "attached" to another country/culture.* ***Training Example:*** *"I try to listen to Caracas radio so that I know what's happening back home."* ***Text Sample:*** *"Those four cultures and languages live in my body and my imagination. Does it make me less American? No." (5195)*
language barriers	Discussion around having language barriers that make it difficult to understand English. Use this subcode for discussions about translating for others in household. ***Training Example:*** *"My parents don't speak English very well, so I have to go to all their doctor appointments."* ***Text Sample:*** *"[My son] is learning a lot of English. Yes, we know it and we understand it, but we don't speak it and his sisters do." (4017)*

"Mail Delivery" Code

Definition: General discussion about participants' and households' experience with mail delivery. Discussions about both receiving mail and sending mail. ***Training Example:*** "Getting actual things in the mail is not as important to me as it once was."

Does not include: Do not use with Example Mail or NHES mail activity discussions, unless the participant makes a side comment during the activities that is more generally about mail delivery. Instead, use "Example Mail" and "NHES" main and subcodes.

Subcodes

location of mailbox	Physical location where the participant and household receives and/or sends mail. ***Training Example:*** *"Our mailbox is at the end of the driveway."* ***Text Sample:*** *"You come out in the park and as soon as you come in the gate, the boxes are right there in a gated area." (4043)*
location of mail	Physical location or locations where the participant and household members keep or save their mail. ***Training Example:*** *"All mail goes directly on the kitchen counter."* ***Text Sample:*** *"We have a box in the kitchen where we put our bills." (7075)*
mail processing	Discussion related to how the participant and other household members sort or process mail, including what to keep, what to open and what to read. ***Training Example:*** *"I look at it really quickly at the mailbox, but I don't make any decisions. I wait until I am in the house and then I look at the return address."* ***Text Sample:*** *"If it's not a bill, it gets thrown on the kitchen table. And if it looks interesting it stays on the kitchen table. If it looks like it's ads, I toss it." (7779)*
mail rid - toss	Discussion about throwing away mail. Do not include discussion of shredding mail; code that under "mail rid—shred." ***Training Example:*** *"I just throw away every catalog I get the minute I get it."* ***Text Sample:*** *"I'm going to bring this [advertisement] in, and then I'll literally walk over to the garbage and throw out." (5203)*
mail rid - shred	Discussion about shredding mail (using scissors, hands, or a machine).

	Training Example: *"I shred everything I get, especially those credit card offers."* ***Text Sample:*** *"If it's something like a credit card offer, I'll either shred it in the shredder machine, or I will take the scissors, and the little fake credit cards that come in those offers, I'll cut them up." (4399)*
mail rid - other	Discussion about getting rid of mail that does not involve shredding or tossing. ***Training Example:*** *You can't be too careful, so I throw all my mail into the fireplace and burn it."* ***Text Sample:*** *"[I use a] plastic trash can with bleach, it erases everything on the paper." (7471)*
mail frequency	Discussion of how often participant and household check the mail. Include discussion of the time of delivery. ***Training Example:*** *"I can go days without checking the mail."* ***Text Sample:*** *"I check my mailbox once in two weeks." (4495)*
trouble with mail	Discussion related to problems with mail delivery such as misdelivered mail. ***Training Example:*** *"We often end up with our neighbor's mail."* ***Text Sample:*** *"They delivered wrong, so I always used to get it and take it to [my neighbors], and be like, 'Hey, I got your mail at my house, and here is your mail.' (6081)*
typical mail	Discussion of the typical types of mail the participant receives. If the participants go through their own mail, use this code. ***Training Example:*** *"I usually get two catalogs a week."* ***Text Sample:*** *"[I get] my light bill. Sometimes surveys like that. I don't really get mail. I guess I'm not a very important person." (5757)*
mail carrier	Discussion of interactions with or perceptions of the person who delivers (or delivered) the household mail. ***Training Example:*** *"Our old mailman used to carry dog treats."* ***Text Sample:*** *"Our mail carrier, he's a cool guy. If he sees the door open, he'll ask me if I got anything. Or I'll see him coming and give it to him." (5703)*

"Example Mail" Code

Definition: Discussion of the example mail activity. Include participants' reactions to all aspects of the mailing and reasons why they would or would not open it. ***Training Example:*** "This stack is a lot more mail than I usually get every day."

Subcodes

stamp	Discussion about the stamp or metered type. ***Text Sample:*** *"This is probably more important because there's a regular stamp." (5441)*
return address	Discussion the sender and the return address displayed on the mailing. ***Text Sample:*** *"Occasionally I would just glance at the return address." (7149)*
recipient name	Discussion about using the name "Jamie Smith" or "household…" ***Text Sample:*** *"If it's my name, I'll open it." (4187)*
size	Discussion about the mailing's size. ***Text Sample:*** *"If this was a Manila envelope or a larger Priority Mail, I would open it, probably." (5203)*
other envelope design	Any other comments about the mailing's design, such as the color of the envelope or additional text like "Open Immediately." ***Text Sample:*** *"No annual fee tells me, immediately, this is an offer for a loan or credit card." (7149)*
Priority Mail	Discussion about a mailing being sent via priority mail delivery. ***Text Sample:*** *"Anything Priority Mail, I know I will open it." (4705)*
Quality Bankers	Discussion about the Quality Bankers mailing. ***Text Sample:*** *"I already have a bank account, so I don't need that." (7503)*
National Customer Support Center	Discussion about the National Customer Support Center mailing. ***Text Sample:*** *"National Customer Support Center... Toss that, because I don't know what it's about." (7401)*
U.S. Department of Commerce	Discussion about the U.S. Department of Commerce mailing. ***Text Sample:*** *"Commerce. Economics. Administration. Yeah. This [is the] U.S. Census. I don't want to do that." (5409)*

Personal note card	Discussion about the personal note card. ***Text Sample:*** *"It's supposed to be a real card, I would keep it." (5103)*
Utility company	Discussion about the utility company mailing. ***Text Sample:*** *"This is not my energy company, so I don't need them." (7321)*
Insurance	Discussion about the insurance mailing. ***Text Sample:*** *"Maybe I would have looked at this if I was considering insurance, but I just happened to get brand new insurance not a week ago." (7015)*
Dentist card	Discussion about the dentist appointment reminder card. ***Text Sample:*** *"I have an appointment, so I'm going to stick that on my fridge, because that's important." (7779)*
Candidate forum	Discussion about the candidate forum mailing. ***Text Sample:*** *"I can see that it's probably about politics here in the city I live in." (4399)*
National Center for Public Opinion Research	Discussion about the National Center for Public Opinion Research mailing. ***Text Sample:*** *"National Center for Public Opinion. Hmm. I'd still open it, because somebody probably spent three to four bucks to send me this." (5203)*
National Council for Education	Discussion about the National Council for Education mailing. ***Text Sample:*** *"This one it says National Council of Education and maybe it has to do with the university." (4655)*
Mail order catalog	Discussion about the mail order catalog mailing. ***Text Sample:*** *"And [this store], yeah that's definitely not for me." (7329)*
Box store circular	Discussion about the box store circular mailing. ***Text Sample:*** *"I don't shop generally at [this store]. Unless there's something on the front that catches my eye, it's put in the trash mail." (4167)*

"NHES" Code

Definition: Any discussion related to the National Household Education Survey and related materials and the nonresponse study. ***Training Example:*** I remember getting the NHES letter."

Subcodes

1st mailing	Any discussion about the initial NHES screener mailing including, remembering receiving it (or not), the appearance, ease or difficulty opening it, and mailer contents. ***Training Example:*** *"I asked my neighbor if they got this letter."* ***Text Sample:*** *"It [first mailing] is from the United States Department of Commerce. That means it's something to do with us in America." (4043)*
pressure sealed	Any discussion about the pressure sealed envelope, including remembering receiving it (or not), the appearance, ease or difficulty opening it, and mailer contents. ***Training Example:*** *"This is hard to open."* ***Text Sample:*** *"I said, okay, if they're sending me this for a second time, then I need to do it." (7553)*
2nd mailing	Any discussion about the 2nd NHES screener mailing, including remembering receiving it (or not), the envelope and the contents or appearance of the letter. ***Training Example:*** *"I don't like the tone of the language in this letter."* ***Text Sample:*** *"At this point, if this were the third one I've gotten, it probably would go directly into the shred without me doing another thing." (4167)*
3rd mailing	Any discussion about the 3rd NHES screener mailing, including remembering receiving it (or not), the envelope and the contents or appearance of the letter. ***Training Example:*** *"I remember setting this aside to go to the website."* ***Text Sample:*** *"But if it didn't have my name, at this point [after three earlier mailings], out of the envelope, unfolded, in my face, even with this barcode even with the United States the Department of Commerce, even with all that, shred." (6393)*

4th mailing	Any discussion about the 4th NHES screener mailing, including remembering receiving it (or not), the envelope and the contents or appearance of the letter. ***Training Example:*** *"I threw this away because I already knew what it said."* ***Text Sample:*** *"I picked this [fourth mailing] up for one minute, and I wanted to throw it away. It's pretty bland." (5707)*
screener design	Any discussion about the screener questionnaire design, such as the cover, colors, font, layout, etc. ***Training Example:*** *"I wish the pictures were more local."* ***Text Sample:*** *"I really just didn't pay attention to the pictures." (6287)*
screener content	Any discussion about the content of the screener questionnaire—that is, the instructions or survey questions. ***Training Example:*** *"This question is really confusing."* ***Text Sample***: *"Yeah, [the screener] guides you over to start over here, and it kind of walks you over left to right." (7471)*
bilingual	Any discussion of the bilingual materials including their thoughts about the translation or opinions about the Spanish content. ***Training Example:*** *"I read the Spanish first then the English."* ***Text Sample:*** *"I prefer to read it in English many times. Unless I am in a place and they ask me, 'Do you want English or Spanish?' And if it is well translated, then Spanish; if not [well-translated, then] English." (4711)*
FedEx	Any discussion of the FedEx mailer, including remembering receiving it (or not). Should be applied with either 2nd screener mailing or 4th screener mailing subcode. ***Training Example:*** *"I was surprised to get something from FedEx."* ***Text Sample:*** *"If they're sending it in a FedEx, it must be really important." (6331)*
five-dollar incentive	Any discussion of the five-dollar bill in the initial envelope (regardless of whether they remember receiving it). Include comments both about the $5 in the example NHES materials and the $5 in the actual NHES letter that was sent earlier in the year. ***Training Example:*** *"I wondered who would send me $5."*

	Text Sample: *"I don't know how this one came, but for some reason God said open that envelope and there sat a $5 bill." (4025)*
why not open	Discussion of why the participant/household did not or would not open a NHES mailing. If participant says they'd open an NHES mailing but provide no explanation about why, use the "open" subcode within the "adjectives" code. If they provide an explanation, double-code using this subcode. ***Training Example:*** *"I don't open anything that says 'penalty' on it."* ***Text Sample:*** *"I was going to [open it], but I was in the process of doing some hair, so I literally forgot. 'Cause I don't like leaving my mail on the table when I'm doing hair. I just put it up there, then guess I forget that I was supposed to read this." (7275)*
why open	Discussion of why the participant/household opened or would open a NHES mailing. If participant says they would open an NHES mailing but provide no explanation about why, use the "not open" subcode within the "adjectives" code. If they provide an explanation, double-code using this subcode. ***Training Example:*** *"It looked official, so I opened it."* ***Text Sample:*** *"Whenever I get this type of letter it's something important." (4655)*
why not complete	Reasons why the participant/household did not complete the screener. Use this subcode during any discussion about barriers to NHES survey participation, even if the discussion does not directly reference the NHES. ***Training Example:*** *"I don't have time to fill out a survey."* ***Text Sample:*** *"I read it and I see that it doesn't apply to me." (5429)*
why complete	Reasons why the participant/household did complete the screener. Use this subcode during any discussion about facilitators or motivations to NHES survey participation, even if the discussion does not directly reference the NHES. ***Training Example:*** *"It is important for your voice to be heard."* ***Text Sample:*** *"It's helping for the future kids." (6487)*
multiple mailings	Participants'/household's reactions to receiving multiple NHES mailings. ***Training Example:*** *"I liked receiving several letters because I kept misplacing them."*

	Text Sample: *"I do remember getting a second one of these, at which time I asked my grandson. I showed him this, and I said to check it out to make sure this was really who it says it is. And he said, as near as he could find anything out, it was legitimate. So, I was like okay, I'll fill it out then." (4167)*
relevant	Participant/household believes that the NHES is relevant to them. In practice, this may be frequently double coded with "why complete." ***Training Example:*** *"Education affects everyone so it's important to participate."* ***Text Sample:*** *"It's more about education. And my kids, they'll tell you, [I put] more value on education." (7375)*
not relevant	Participant/household does not believe that the NHES is relevant to them. Include discussion from participants who believe the survey is only for people with children or school-aged children. In practice, this may be frequently double coded with "why not complete." ***Training Example:*** *"I don't have kids, so I knew this was not for me."* ***Text Sample:*** *"This has kids all over it. It doesn't say anything about households who have adult children no longer living in them." (4167)*
recruit NRFU	Any discussion about why the participant or household participated in the nonresponse study and/or conversation about the recruiting process. ***Training Example:*** *"It is different being asked by a person to do something as opposed to a letter."* ***Text Sample:*** *"It's so much harder to be like 'No!' When you're face-to-face than it is to be when something's coming in the mail that you just can't be bothered with." (5103)*
materials NRFU	Any discussions about the nonresponse study materials, such as *Sorry We Missed You* cards, mailed letters, and CAQ enclosure. ***Training Example:*** *"I liked being able to have a toll-free number to call."* ***Text Sample:*** *"I called. And the lady picked up. And I was like, 'Is this a scam?' She said, 'No, this is not a scam.' I said, 'Okay let's try it.' (5757*)
incentive NRFU	Any discussion about the $5 or $120 incentives to participate in the nonresponse study.

	Training Example: *"Getting $120 made talking to you guys worth it."* ***Text Sample:*** *"You want to know why I'm taking this one [survey]? For the $120." (7109)*
how to improve	Any discussion or suggestions about how to improve the NHES materials. ***Training Example:*** *"The font is so small. If it was bigger it would be easier to read without hunting for my glasses."* ***Text Sample:*** *"If there was a deadline on it, like all over, a date, I'm sure I would have noticed that." (4399)*
research	Any discussion about how the household members researched or investigated the NHES, AIR, NCES, Census, or the follow-up study after receiving materials in the mail. ***Training Example:*** *"I googled the 1-800 number but nothing came up."* ***Text Sample:*** *"Like I even searched you guys too. I'm like who are they?" (6201)*

"Memo" Code

Definition: When the interviewer memo or field staff notes provide information not captured in the transcript, that text will be loaded into NVivo for analysis. The goal of the memo subcodes is to capture interviewer and field staff impressions of the interview or important interactions and context that would not otherwise be captured in the transcript. Only use these subcodes in text that comes from the memos and notes.

Subcodes

recruitment	Description from the interviewers and field staff about the events that led up to recruiting the household to participate in the nonresponse study. ***Training Example:*** *"The third time we rang the bell the participant answered. She was skeptical and even called the toll-free study number. After she spoke to someone at the help desk, she was willing to schedule an interview for the following day."* ***Text Sample:*** *"The participant answered the door slightly and stuck his head out. We introduced ourselves and the purpose of our visit. He suggested that we may want to talk to someone who has kids, but after we elaborated on our intent he agreed to the interview for a later time." (4289)*

neighborhood	Description from the interviewers and field staff about the neighborhood. ***Training Example:*** *"The house is in a tree-lined street with people walking their dogs and/or pushing strollers. There were multiple stores in the nearby main street."* ***Text Sample:*** "*The lawn was well-manicured and clean, as were most of the houses on the block." (7109)*
home exterior	Descriptions of what the house or property looked like on the outside when the interviewer and field staff approached during the recruitment or interview phase. ***Training Example:*** *"A broken basketball hoop was tucked behind several bags of outgoing household trash."* ***Text Sample:*** *"The front of the house has a metal ramp leading up to the front door, and from what we could see the front interior staircase had a chairlift to move wheelchairs upstairs." (5409)*
home interior	Descriptions of where the interview took place or what the house looked like on the inside. ***Training Example:*** *"The living room was spacious, having two recliners and a L-shaped sofa, all in a bright floral pattern."* ***Text Sample:*** *"The house had a lived-in quality to it, slightly cluttered, but for the most part organized." (6081)*
participant conduct	Interviewer and field staffs' impressions about the demeanor of or interactions with participant and others in the household present during the interview. ***Training Example:*** *"The participant laughed a lot and kept being distracted by his two-year old grandson who was climbing on the chair next to him."* ***Text Sample:*** *"Participant was congenial and hospitable throughout the visit, offering us water, turning off the TV." (4399)*
contradiction	Interviewers' and field staffs' impression that what participants said or how they acted were not always in alignment. Use this code when interviewer and field staff observe that the participant expressed one belief during the interview and expressed a contradictory one at another point during the interview. ***Training Example:*** *"At first the participant said he always opened all his mail, but we saw piles of unopened mail on the kitchen table when we sat down to do the interview."*

	Text Sample: *"His answers were highly inconsistent and often contradictory, and we had difficulty adjudicating what was the truth and what was something that he thought we wanted to hear." (6393)*

"Adjective" Codes

Definition: Adjective subcodes are always used in conjunction with a main code or subcode. The purpose of adjective subcodes is to add detail, depth, and context about the discussion.

negative	Participant's and/or household's reaction or opinion expresses disagreement, or is unfavorable, pessimistic, or adverse. ***Text Sample:*** *"Really, I don't see a benefit. You answer things you don't want to. Some people are honest, others are not and so... I don't know what their real purpose may be. But, for me, I don't get anything from it." (4711)*
positive	Participant's and/or household's reaction or opinion expresses agreement or happiness, or is favorable or hopeful. ***Text Sample:*** *"I was a parent that stayed in with the teachers and stuff to make sure they were on the right track." (7481)*
lack	Participant's and/or household's reaction or opinion expresses apathy or lack of interest. Can also refer to the absence of items or materials. ***Text Sample:*** *"To be honest, I don't even care about the government, they do what they're going to do." (6081)*
open	Participant and/or household opened or would open a mailing. ***Text Sample:*** *"We'll open it, we'll see what it says, if it's for us, what it brings." (4017)*
not open	Participant and/or household did not open or would not open a mailing. ***Text Sample:*** *"This one I probably didn't open." (7715)*
throw away	Participant and/or household threw away or would throw away a mailing and/or letter. ***Text Sample:*** *"This is going straight to the trash." (4271)*
keep	Participant and/or household kept or would keep a mailing and/or letter. ***Text Sample:*** *"I just got one of those, so yeah I would keep that." (4373)*

read	Participant and/or household read or would read a mailing and/or letter. ***Text Sample:*** *"The first thing I would do—I would look at this, and I would make sure that it's related to me." (6393)*
would not read	Participant and/or household did not read or would not read a mailing and/or letter. ***Text Sample:*** "*This is probably a credit card, and I don't want to be bothered with it." (7109)*
remember	Participant and/or household remembers that they received a mailing. ***Text Sample:*** "*I remember reading that." (4167)*
do not remember	Participant and/or household does not remember that they received a mailing. ***Text Sample:*** *"Well, I don't remember this. The U.S. Census is voluntary." (5409)*
unclear	Not clear from interview what participant and/or household did with a piece of mail. ***Text Sample:*** *"You went to the first question, and it was over[crosstalk]." (7109)*
I have agency	Participant and/or household believes they have influence or control over a certain activity, belief, or domain. ***Text Sample:*** *"[Voting is] important. That's why when my kids are 18, I make sure they vote." (7375)*
I do not have agency	Participant and/or household believes they do not have influence or control over a certain activity, belief, or domain. ***Text Sample:*** *"You know, ain't nothing going to change. Ain't nothing going to happen." (5515)*
interruption	Section of the transcript where the interview is interrupted such as the participant taking a phone call or having a conversation with another person. ***Text Sample:*** *"Just excuse me for one second, I just want to throw something out." (5463)*

Appendix H. Observation Instrument

Please complete the observation protocol below. Record all observations as unobtrusively as possible. If necessary, you may explain the purpose of your observations if you are asked by any individual in the neighborhood, including anyone from the sampled household.

DEFINITION

What do we mean by the sample unit OR the building within which the sample unit resides? Here we are making a distinction between:

- a sample unit that we might call a single occupancy dwelling unit (a single residential structure that stands alone) and
- a multi-unit structure where the sample unit resides in a building that houses other units.

GENERAL INFORMATION

Date of observation: __ __ / __ __ / __ __

Time of day: __ __ : __ __ AM / PM (circle one)

[Take two or three photos of the address you are going to observe. Photos should be taken from the front of the address, if possible. Photos should include the entire structure, if possible. They should be taken in landscape but can be taken in portrait orientation when needed (e.g., for tall buildings). Photos should only be taken from public spaces such as the street, and will not be taken while on someone's private property.]

OBSERVABILITY

1. Are you able to observe the sample unit?

- ☐ Yes → SKIP TO Q3 ON PAGE 2.
- ☐ No, cannot locate the address
- ☐ No, can observe the multi-unit building but cannot gain entry to observe the unit
- ☐ No, cannot gain sufficient access to observe the building
- ☐ No, other reason

2. Please explain why you are not able to observe the sample unit.

_____

_____

_____

IF Q1 = NO, CAN OBSERVE MULTI-UNIT BUILDING BUT CANNOT GAIN ENTRY TO OBSERVE UNIT, CONTINUE TO Q3; OTHERWISE, SKIP TO Q8 ON PAGE 6.

STRUCTURE TYPE

3. Select the option that best describes the sample unit or the building within which the sample unit resides:

- ☐ Single occupancy dwelling unit (one household in a single residential structure that stands alone)
- ☐ Duplex (two-household structures attached together, but with separate entrances)
- ☐ Townhouse/rowhouse (3 or more household structures attached together, but with separate entrances)
- ☐ Low-rise apartment or condominium building (1-3 floors)
- ☐ Mid-rise apartment or condominium building (4-6 floors)
- ☐ High-rise apartment or condominium building (7+ floors)
- ☐ Commercial business → SKIP TO Q9 ON PAGE 7.
- ☐ Vacant lot → SKIP TO Q9 ON PAGE 7.
- ☐ Other non-residential → SKIP TO Q9 ON PAGE 7.
- ☐ Other – please describe:

_____

_____

_____

_____

- ☐ Could not determine – please describe:

_____

_____

_____

_____

HOUSEHOLD RESIDENTIAL OCCUPANCY STATUS

4. Based on your observation, indicate whether the sample unit is an/a:

- ☐ Currently occupied address (e.g., car in the driveway, toys/chairs/yard tools outside the house, lights on inside the home)
- ☐ Seasonal address, no current occupants (e.g., resort area and no evidence of current occupants)
- ☐ Temporarily vacant address (e.g., for sale/rent sign/lock box and no evidence of current occupants)
- ☐ Permanently vacant address (e.g., windows/doors boarded up, condemned notice/unlivable conditions, currently under construction)
- ☐ Other
- ☐ Could not determine

Please describe what aspects of the address made you decide on the specific occupancy status above.

_____

_____

_____

IF Q4 = **PERMANENTLY** VACANT ADDRESS → SKIP TO Q8 ON PAGE 6.

MAIL ACCESS

5. Based on your observation, how does this sample unit receive mail?

- ☐ Mail slot
- ☐ Mailbox attached to their home
- ☐ Mailbox at the end of a driveway
- ☐ Mailbox across the street/at the end of the road
- ☐ Mailbox, slot, or room in the multi-unit building
- ☐ More than one way - please describe:

_____

_____

☐ No mailbox or slot in view

☐ Other – please describe:

_____

_____

☐ Could not determine - please describe:

_____

_____

➔ IF Q1= NO, CAN OBSERVE THE MULTI-UNIT BUILDING BUT CANNOT GAIN ENTRY TO OBSERVE THE UNIT → SKIP TO Q8 ON PAGE 6.

➔ IF Q4 = **TEMPORARILY** VACANT ADDRESS, → SKIP TO Q8 ON PAGE 6.

HOUSEHOLD MEMBER ELIGIBILITY FOR NHES TOPICALS

6. Based on your observation of the sample unit or building within which the sample unit resides, is there any indication that children 18 or under (including babies) may live IN THE SAMPLE UNIT (e.g., visible toys, bikes, basketball hoop, sports equipment, car seats, strollers, chalk, outdoor swing/play set, bumper sticker or car window sticker, child finder sticker for firefighters, etc.)?

☐ Yes

☐ No

☐ Could not determine

Please describe what aspects of the address made you decide whether or not children live in the sample unit.

_____

_____

_____

HOUSEHOLD ATTRIBUTES

7. Are there any unique attributes or decorations (e.g., flags, wreaths, bumper stickers, signs) on or around the sample unit that indicate -- *If yes, write them down.*

Pride in education (e.g., honor roll bumper stickers, university/college flags or decor)

☐ Yes
☐ No

If yes, what?

_____

_____

Community involvement (e.g., political candidate signs, indicators of being involved with charities, kids' sports/clubs, neighborhood associations)

☐ Yes
☐ No

If yes, what?

_____

_____

Patriotism (e.g., American flag, state flag)

☐ Yes
☐ No

If yes, what?

_____

_____

Privacy (e.g., security camera, no loitering sign, household alarm sign, locked gate?)

☐ Yes
☐ No

If yes, what?

_____

_____

Are there any unique attributes or decorations (e.g., flags, wreaths, bumper stickers, signs) on or around the sample unit that indicate -- *If yes, write them down.*

A language other than English (e.g., signs or bumper stickers in another language)

☐ Yes

☐ No

If yes, what language?

_____

If yes, what indicators?

_____

_____

Anything else

☐ Yes

☐ No

If yes, what?

_____

_____

HOUSEHOLD INCOME

8. Relative to the general population and based on your observations, would you judge this sample unit's household income to be… *Use visual cues of the conditions of the house/building; number, make, and age of cars at the residence; and knowledge of the neighborhood/environment.*

☐ In the bottom third of the population

☐ In the middle third of the population

☐ In the top third of the population

☐ Could not determine

Please describe what aspects of the address made you decide on the specific household income level above.

_____

_____

_____

9. Provide a general description of the unit and the surrounding neighborhood, commenting only on things that have not already been noted in the questions above (e.g., building entry requirements, condition of address/neighborhood, objects around the address, visible people, other building types in the neighborhood).

_____

_____

_____

_____

_____

_____

_____

_____