



## **August 2016 Nonresponse Survey Methodology Report**

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September 07, 2016

## **I. SUMMARY**

The August 2016 Nonresponse Survey, fielded for the Pew Research Center for the People & the Press by Abt SRBI, obtained telephone interviews with a representative sample of 2,802 adults living in the United States (702 respondents were interviewed on a landline telephone and 2,100 were interviewed on a cell phone; 59 respondents were landline-only, 1,486 were dual users and 1,257 were cell-only). Interviewing was conducted from August 23 to September 2, 2016 in English and Spanish. Samples were drawn from both the landline and cell phone RDD frames. Persons with residential landlines were not screened out of the cell phone sample. Both the landline and cell phone samples were provided by Survey Sampling International. The combined sample is weighted to match demographic parameters from the American Community Survey and telephone status parameters from the National Health Interview Survey. The weighting procedure also accounts for the fact that respondents with both a landline and cell phone had a greater probability of selection. The margin of sampling error for weighted estimates based on the full sample is  $\pm 2.04$  percentage points.

## **II. SAMPLE DESIGN**

The target population for the study is non-institutionalized persons age 18 and over, living in the US. Samples were drawn from both the landline and cellular random digit dial (RDD) frames to represent people with access to either a landline or cell phone. Both samples were provided by Survey Sampling International, LLC according to Abt SRBI specifications.

Numbers for the landline sample were drawn with equal probabilities from active blocks (area code + exchange + two-digit block number) that contained one or more residential directory listings. The cellular sample was drawn by Survey Sampling International through a systematic sampling from 1000-blocks dedicated to cellular service according to the Telcordia database.

After the sample selection, the sample cases were assigned to three separate designs:

- Design A: 10 minutes survey without advanced letters (200 landline respondents and 600 cell respondents)
- Design B: 10 minutes survey with advanced letters to all landline frame sample cases and cell frame sample cases with an appended address (201 landline respondents and 600 cell respondents)
- Design C: 20 minutes survey without advanced letters (301 landline respondents and 900 cell respondents)

### III. QUESTIONNAIRE DEVELOPMENT AND TESTING

The questionnaire was developed by the Pew Research Center in consultation with Abt SRBI. In order to improve the quality of the data, the questionnaire was pretested with a small number of respondents using landline RDD telephone numbers. The pretest interviews were conducted using experienced interviewers who could best judge the quality of the answers given and the degree to which respondents understood the questions. Some final changes were made to the questionnaire based on the monitored pretest interviews.

### IV. CALLING PROTOCOL

Landline numbers were called as many as 7 times, and cell phone numbers were called as many as 7 times. Up to 3 additional call attempts were made for Spanish language callbacks. Refusal conversion was attempted on soft refusal cases. Interviews were conducted from August 23 to September 2, 2016. Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. Each number received at least one daytime call. The sample was released for interviewing in replicates, which are representative subsamples of the larger sample. Using replicates to control the release of sample ensures that complete call procedures are followed for the entire sample.

For the landline sample, interviewers asked to speak with either the youngest male or youngest female at home right now. For the cell sample, interviews were conducted with the person who answered the phone. Interviewers verified that the person was an adult and in a safe place before administering the survey. Cell sample respondents were offered a post-paid cash incentive of \$5 for their participation.

### V. WEIGHTING

Five weights were created for this survey: one separate weight for each design (*WEIGHTA*, *WEIGHTB* and *WEIGHTC*), one weight combining the sample cases from design A and B (*WEIGHTAB*), and one weight combining respondents from the three designs (*WEIGHTABC*). The specification for each weight follows the Pew People-Press Weighting Summary (Christian, Best and Kennedy, January 2016). The design of all these weights is the same and follows three steps. First, it was computed a base weight using the entire sample. Then, the sample for each separate design and the two combination of samples are adjusted to population benchmarks in terms of their demographic variables. This process is described below in more details.

### ***First Stage Weighting***

The first stage of weighting corrected for different probabilities of selection associated with the number of adults in the household and the respondent's telephone usage (landline only, cell phone only or has both kinds of phones). This weighting also adjusts for the overlapping landline and cell sample frames and the relative sizes of each frame and each sample.

This first-stage weight, labeled NEWWT1, can be expressed as:

$$WT = \frac{1}{\left(\frac{S_{ll}}{U_{ll}} \times \frac{LL}{AD}\right) + \left(\frac{S_{cp}}{U_{cp}} \times CP\right) - \left(\frac{S_{ll}}{U_{ll}} \times \frac{LL}{AD} \times \frac{S_{cp}}{U_{cp}} \times CP\right)}$$

Where:

LL =1 if respondent has a landline phone

=0 if respondent has no landline phone

(OR number of landlines on which the respondent could have been reached)

CP =1 if respondent has a cell phone

=0 if respondent has no cell phone

(OR number of cell phones on which the respondent could have been reached)

S<sub>ll</sub>= size of the landline sample drawn across all released replicates (# of landline numbers dialed)

S<sub>cp</sub>=size of the cell phone sample drawn across all released replicates (# of cell phone numbers dialed)

U<sub>ll</sub>=size of the landline RDD frame (according to SSI)

U<sub>cp</sub>=size of the cell RDD frame (according to SSI)

AD=number of adults in the household (1, 2, 3 or more)<sup>1</sup>

### ***Second Stage Weighting***

The second stage of weighting balances sample demographics to estimated population parameters. The sample is balanced to match national population parameters for sex, age, education, race, Hispanic origin, region (U.S. Census definitions), population density, and telephone usage. The Hispanic origin was broken out based on nativity: U.S born and non-U.S. born. The white, non-Hispanic subgroup is also balanced on age, education and region. The basic weighting parameters came from an analysis of the Census Bureau's 2014 American Community Survey (ACS) one-year estimates. The ACS parameters were calculated for adults aged 18 years and older residing in households, excluding those living in institutionalized group quarters. The population density parameter was derived from Census 2010 data. The telephone usage parameter came from an analysis of the July-December 2015 National Health Interview

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<sup>1</sup> For the landline Hispanic oversample, AD = number of Hispanic adults in the household

Survey<sup>2</sup> and was based on all adults living in households with a phone (either landline or cell phone) in the U.S., including Alaska and Hawaii.

The second stage weighting uses an iterative technique that simultaneously balances the distributions of all weighting parameters. This process was performed separately for each design and combination of designs (designs A and B, and designs A, B and C). Weights were trimmed at the 5<sup>th</sup> and 95<sup>th</sup> percentiles to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the national population. Table 1 compares weighted and unweighted sample distributions to population parameters for each of the three design weights.

**Table 1. Weighted and Unweighted Estimates Along with Benchmarks**

	Benchmark	Weighted by WEIGHT			Unweighted		
		Survey Design A	Survey Design B	Survey Design C	Survey Design A	Survey Design B	Survey Design C
18-24	12.9%	13.1%	12.3%	12.7%	10.6%	8.0%	8.7%
25-34	17.6%	17.9%	17.9%	18.2%	14.4%	14.2%	16.9%
35-44	16.6%	16.7%	17.0%	16.5%	16.6%	15.0%	12.5%
45-54	17.8%	17.3%	17.9%	18.2%	15.0%	17.2%	17.4%
55-64	16.5%	16.5%	16.5%	16.0%	17.1%	18.4%	18.1%
65+	18.6%	18.5%	18.3%	18.5%	26.2%	27.2%	26.5%
High School Graduate or less	40.7%	39.2%	40.0%	39.4%	30.8%	28.3%	28.9%
Some College	31.5%	32.1%	31.7%	31.6%	29.5%	28.6%	29.0%
College Graduate	27.8%	28.7%	28.3%	29.0%	39.8%	43.1%	42.1%
Northeast	18.0%	17.8%	18.1%	17.7%	16.5%	17.1%	17.3%
Midwest	21.2%	21.6%	20.7%	20.9%	21.9%	20.5%	20.8%
South	37.3%	37.6%	38.0%	37.6%	38.4%	38.7%	37.7%
West	23.5%	23.1%	23.2%	23.8%	23.2%	23.7%	24.1%
White Non-Hispanic	65.1%	64.8%	64.5%	64.9%	65.4%	69.8%	67.2%
Black Non-Hispanic	11.7%	11.5%	11.7%	11.7%	11.9%	9.7%	10.8%
Hispanic, Native Born	7.8%	8.0%	8.0%	7.9%	7.6%	6.5%	7.1%

<sup>2</sup> Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July–December 2015. National Center for Health Statistics. May 2016. Available from: <http://www.cdc.gov/nchs/nhis.htm>.

Hispanic, Foreign Born	7.5%	7.7%	7.8%	7.6%	9.1%	6.5%	7.7%
Other, Non-Hispanic	7.9%	8.0%	8.0%	8.0%	6.0%	7.5%	7.2%
1 Lowest Density	19.9%	19.5%	19.4%	19.4%	18.4%	19.6%	20.4%
2	20.0%	19.6%	20.6%	20.0%	19.9%	20.1%	19.8%
3	20.1%	20.4%	19.6%	20.1%	20.2%	21.2%	19.7%
4	20.0%	20.1%	20.6%	20.4%	19.8%	20.6%	21.1%
5 Highest Density	20.0%	20.3%	19.8%	20.1%	21.8%	18.5%	18.9%
Landline Only	5.5%	3.7%	3.7%	3.7%	2.5%	1.7%	2.1%
Dual	43.8%	44.9%	44.4%	44.5%	53.1%	52.6%	53.3%
Cell Phone Only	50.7%	51.4%	51.8%	51.7%	44.4%	45.7%	44.6%

## VI. DESIGN EFFECT AND MARGIN OF ERROR

Weighting and survey design features that depart from simple random sampling tend to result in an increase in the variance of survey estimates. This increase, known as the design effect or *deff*, should be incorporated into the margin of error, standard errors, and tests of statistical significance. The overall design effect for a survey is commonly approximated as the 1 plus the squared coefficient of variation of the weights. For this survey, the margin of error (half-width of the 95% confidence interval) incorporating the design effect for full-sample estimates at 50% is  $\pm 2.02$  percentage points. Estimates based on subgroups will have larger margins of error. It is important to remember that random sampling error is only one possible source of error in a survey estimate. Other sources, such as question wording and reporting inaccuracy, may contribute additional error. A summary of the weights and their associated design effect is reported in Table 2 below.

**Table 2. Design Effect and Effective Sample Size**

Weight Variable	Number of cases (n)	Minimum weight	Maximum weight	Design effect	Effective n
WEIGHTA	800	0.41727	1.93981	1.19	670
WEIGHTB	801	0.32438	2.34536	1.32	608
WEIGHTC	1,201	0.35694	2.11260	1.25	959
WEIGHTAB	1,601	0.39082	2.01661	1.22	1,316
WEIGHTABC	2,802	0.38051	1.92475	1.21	2,317

## VII. DISPOSITIONS

Table 3 reports the disposition of all sampled telephone numbers dialed for the survey. Abt SRBI calculates three component rates: Response rate, Cooperation rate, and Contact rate<sup>3</sup>:

- Response rate – the number of complete interviews with reporting units divided by the number of eligible reporting units in the sample.
- Cooperation rate – the proportion of all cases interviewed of all eligible units ever contacted.
- Contact rate – measures the proportion of all cases in which some responsible member of a housing unit was reached by the survey

Overall, the response rate (AAPOR RR3) was 10.9% for the RDD landline sample and 8.1% for the RDD cell sample for Design A; 12.9% for the RDD landline sample and 10.1% for the RDD cell sample for Design B; and 10.9% for the RDD landline sample and 8.6% for the RDD cell sample for Design C.

**Table 3. Final Dispositions and Rates, by Design and Sample**

		Design A		Design B		Design C	
		Landline RDD Sample	Cell RDD Sample	Landline RDD Sample	Cell RDD Sample	Landline RDD Sample	Cell RDD Sample
<b>Interview (Category 1)</b>							
Complete	1.000	200	600	201	600	301	900
Screen-outs	1.100	0	0	0	0	0	0
Partial	1.200	4	16	3	24	26	68
<b>Eligible, non-interview (Category 2)</b>							
Refusal and breakoff	2.100	4	15	5	5	20	41
Refusal	2.110	720	0	539	0	1,093	0
Respondent never available	2.210	2	0	0	0	5	0
Telephone answering device (confirming HH)	2.220	0	0	0	0	0	0
Answering machine household-no message left	2.221	674	0	628	0	981	0
Answering machine household-message left	2.222	0	0	0	0	0	0
Deceased respondent	2.310	0	0	0	0	0	0
Physically or mentally unable/incompetent	2.320	20	0	18	0	39	0

<sup>3</sup> Abt SRBI's disposition codes and reporting are consistent with the American Association for Public Opinion Research standards.

Language problem	2.330	0	0	0	0	0	0
Household-level language problem	2.331	30	0	13	0	28	0
Respondent language problem	2.332	0	0	0	0	0	0
<b>Unknown eligibility, non-interview (Category 3)</b>							
Always busy	3.120	91	595	62	416	142	723
No answer	3.130	880	815	711	826	1,297	1,331
Call blocking	3.150	2	64	5	76	6	210
Technical phone problems	3.160	0	1	2	0	0	0
Housing unit, unknown if eligible respondent	3.200	0	0	0	0	0	0
No screener completed: No live contact made	3.210	0	3,904	0	2,598	0	5,222
No screener completed: Live contact made	3.210	0	3,260	0	2,839	0	5,421
Other: "cell phone" dispo used in error	3.910	0	3	0	2	0	12
Other: Cell case physically or mentally unable/incompetent	3.920	0	23	0	20	0	55
Other: Cell case language problem	3.930	0	127	0	84	0	164
<b>Not eligible (Category 4)</b>							
Out of sample - other strata than originally coded	4.100	0	0	0	0	0	0
Fax/data line	4.200	203	13	155	11	271	23
Non-working/disconnect	4.300	6,538	3,402	5,080	2,870	9,333	5,562
Temporarily out of service	4.330	144	690	119	457	237	815
Special technological circumstances	4.400	0	0	0	0	0	0
Number changed	4.410	0	0	0	0	0	0
Cell phone	4.420	0	0	1	0	1	0
Business, government office, other organizations	4.510	412	316	335	293	592	615
No eligible respondent (e.g., child phone)	4.700	0	141	0	125	0	303
Other	4.900	0	0	0	0	0	0
<b>Total phone numbers used</b>		<b>9,924</b>	<b>13,985</b>	<b>7,877</b>	<b>11,246</b>	<b>14,372</b>	<b>21,465</b>
Completes (1.0)	I	200	600	201	600	301	900
Partial Interviews (1.2)	P	4	16	3	24	26	68
Eligible Non-Interview: Refusal (2.1)	R	724	15	544	5	1113	41
Eligible Non-Interview: Non-Contact (2.2)	NC	676	0	628	0	986	0
Eligible Non-Interview: Other (2.3)	O	50	0	31	0	67	0
Undetermined If Working and Residential (3.1)	UH	973	1,475	780	1,318	1445	2264
<b>Working and Residential But Undetermined Eligibility (3.2,3.9)</b>							
Live contact was made	UO <sub>C</sub>	0	3,410	0	2,943	0	5640
Live contact not made	UO <sub>NC</sub>	0	3,907	0	2,600	0	5234
Not Eligible: Nonworking, Nonresidential, or Ported (4.1-4.5,4.9)	NWC	7,297	4,421	5,690	3,631	10434	7015
Screen Out: Working and Residential but Not Eligible (4.7)	SO	0	141	0	125	0	303
<b>TOTAL</b>		<b>9,924</b>	<b>13,985</b>	<b>7,877</b>	<b>11,246</b>	<b>14,372</b>	<b>21,465</b>



<b>e1</b> =(I+P+R+NC+O+UO <sub>C</sub> +OU <sub>NC</sub> +SO)/(I+P+R+NC+O+UO <sub>C</sub> +OU <sub>NC</sub> +SO+NWC)	18.5%	64.7%	19.8%	63.4%	19.3%	63.5%
<b>e2</b> =(I+P+R)/(I+P+R+SO)	100.0%	81.7%	100.0%	83.4%	100.0%	76.9%
<b>AAPOR RR3</b> = I / (I+P+R+NC+O+[e1*e2*UH]+[e2*(UO <sub>C</sub> +UO <sub>NC</sub> )])	10.91%	8.12%	12.87%	10.08%	10.86%	8.59%
<b>AAPOR CON2</b> = (I+P+R+O+[e2*UO <sub>C</sub> ] / (I+P+R+NC+O+[e1*e2*UH]+[e2*(UO <sub>C</sub> +UO <sub>NC</sub> )])	53.33%	46.25%	49.88%	51.83%	54.37%	51.03%
<b>AAPOR COOP1</b> = I / (I+P+R+O+[e2*UO <sub>C</sub> ])	20.45%	17.55%	25.80%	19.45%	19.97%	16.83%
<b>AAPOR REF2</b> = R / (I+P+R+NC+O+[e1*e2*UH]+[e2*(UO <sub>C</sub> +UO <sub>NC</sub> )])	39.48%	0.20%	34.84%	0.08%	40.16%	0.39%
CONTACT x COOP	10.91%	8.12%	12.87%	10.08%	10.86%	8.59%