New Hampshire Statewide Election Poll

Methodology Report

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I. SUMMARY

The New Hampshire Statewide Election Poll fielded by Abt SRBI, obtained telephone interviews with a sample of 782 adults in New Hampshire. The survey featured an overlapping dual frame landline and cell phone random digit dial (RDD) design. In total, 397 respondents were interviewed on a landline and 385 were interviewed on a cell phone. Interviewing was conducted from October 7 to 11, 2016 in English. Details on the sample design, data collection protocol, weighting, and response rates are discussed below.

II. SAMPLE DESIGN

The target population for the study is non-institutionalized persons age 18 and over living in New Hampshire. 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.

The landline frame is constructed by compiling all New Hampshire telephone exchanges that are classified as providing regular telephone service. The frame is referred to as "list-assisted" because a complete file of directory-listed residential numbers is used to remove 100-banks from the frame if they contain zero residential listings. The remaining 100-banks are "working" and used to enumerate all the telephone numbers within the bank from which a sample is drawn. All landline numbers (directory-listed and unlisted) in the working banks are eligible to be randomly dialed. Telephone numbers known to belong to businesses are removed.

The cellular telephone frame begins with 1,000-blocks constructed from exchanges that provide cellular telephone service. The frame of 1,000-blocks is then expanded to the 100-block level to identify and remove "mixed use" 100-blocks, or those that include landline numbers. The result is a sampling of cellular 100-blocks that is mutually exclusive of the list-assisted RDD sampling frame described above.

For the landline sample, interviewers were asked to speak with the youngest adult male or female currently at home based on a random rotation. If no male/female was available, interviewers asked to speak with the youngest adult of the other gender. 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.

III. CALLING PROTOCOL

Landline and cell phone numbers were called as many as 5 times. Refusal conversion was attempted on approximately 50% of soft refusal cases in the landline sample only. Interviews were conducted from October 7 to 11, 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. When dialing the sample, the state of New Hampshire was first divided into four geographic strata and interviews were completed within each stratum proportionate to the adult population distribution.

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.

IV. WEIGHTING

The final weights produced for this survey accounted for the dual frame sample design and aligned the sample to match the population parameters of the adult population in New Hampshire. The final survey dataset contains two final weight variables, including a full sample weight (TOT_WGT) and a weight just for the respondents who answered the survey after the inclusion of questions Q25 and Q26 (SUB_WGT). The design of both sample weights is the same and described below.

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.

Second Stage Weighting

The post-stratification adjustment of the first stage weights was done through a process known as raking ratio estimation, or "raking." The raking procedure uses an iterative technique that simultaneously calibrates the sample to population distributions defined by socio-demographic parameters. The second stage weights aligned the full sample to known population benchmarks for the state of New Hampshire on the following dimensions:

- Age By Gender
- Education Level By Gender

- Race/Ethnicity
- Region of State
- Household Telephone Service (cell phone only, landline only, or dual service)

The population parameters for sex, age, education, race, and Hispanic ethnicity were computed from the 2015 American Community Survey (ACS), filtered on non-institutionalized adults aged 18 and older residing in New Hampshire. The population parameter for region of state was obtained from the 2010-2014 American Community Survey (ACS), filtered on non-institutionalized adults aged 18 and older residing in New Hampshire. The telephone usage population estimates were constructed from the model-based estimates for New Hampshire that were released by the National Center for Health Statistics for the year 2015[1].

After the raked weights were generated, we examined the distribution of values. Weights were trimmed at 1st and 99th percentiles to prevent individual interviews (i.e., those with large weights) from having too much influence on the final results. This trimming process also served to reduce the variance of the weight values, and, in turn, reduce the design effect from weighting. The use of these weights in statistical analysis ensures that the demographic characteristics of the full sample closely approximate the demographic characteristics of the adult population in New Hampshire. In the survey dataset, this full sample weight is labeled WEIGHT. Table 1 compares weighted and unweighted total sample distributions to population parameters in New Hampshire.

V. 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 design effect is the ratio of the variance derived from a survey sample design to the variance that would be obtained from a simple random sample, assuming the same sample size. In this survey, the design effect for the full sample of registered voters (n=650) is 1.29. The margin of error incorporating the design effect for the full-sample is ± 4.35 percentage points. This means that in 95 out of every 100 samples drawn using the same methodology, estimated proportions based on the full sample will be no more than 4.35 percentage points away from their true values in the population (assumes a proportion of 50% and confidence level of 95%).

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[1] Ganesh N. Wireless substitution: State-level estimates from the National Health Interview Survey, 2015. National health statistics reports. Hyattsville, MD: National Center for Health Statistics. August 2016. Available from: http://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless_state_201608.pdf

The design effect for the sample of respondents who answered the survey after the inclusion of questions Q25 and Q26 (n=340) is 1.36 and the margin of error is ± 6.19 percentage points. Estimates based on subgroups will have larger margins of error. For instance, for the likely voters in the full sample (n=517), the margin of error is ± 4.87 percentage points. 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.

Table 1. Weighted and Unweighted Estimates Along with Benchmarks

	Benchmark	Weighted By WEIGHT	Unweighted
18-29	19.5%	19.5%	12.3%
30-39	14.0%	13.9%	8.6%
40-49	16.8%	16.9%	12.9%
50-64	29.2%	29.2%	33.4%
65+	20.5%	20.5%	32.9%
Male	49.0%	49.0%	51.0%
Female	51.0%	51.0%	49.0%
High School Graduate or less	36.3%	36.3%	28.5%
Some College/Associate	30.9%	30.9%	25.8%
College Graduate	20.6%	20.6%	28.4%
Post-College+	12.2%	12.2%	17.3%
White Non-Hispanic	92.2%	92.2%	92.7%
Hispanic/Non-White	7.8%	7.8%	7.3%
Rockingham	22.3%	22.3%	21.9%
Hillsborough	29.9%	29.9%	29.8%
West	20.4%	20.4%	20.7%
Northeast	27.4%	27.5%	27.6%
Cell-Only	37.3%	37.3%	23.5%
Dual	58.4%	58.4%	71.6%
Landline-Only	4.3%	4.3%	4.9%

VI. DISPOSITIONS

Table 2 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[2]:

- o Response rate – the number of complete interviews with reporting units divided by the number of eligible reporting units in the sample.
- o Cooperation rate – the proportion of all cases interviewed of all eligible units ever contacted.
- o 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 15.8% for the landline sample and 9.4% for the cell sample.

Table 2. Final Dispositions and Rates, by Sample

		Landline Sample	Cell Sample
Interview (Category 1)			
Complete	1.000	397	385
Partial	1.200	19	19
Eligible, non-interview (Category 2)			
Refusal and breakoff	2.100	14	15
Refusal	2.110	1,119	0
Respondent never available	2.210	8	0
Answering machine household-no message left	2.221	339	0
Physically or mentally unable/incompetent	2.320	34	0
Household-level language problem	2.331	7	0
Unknown eligibility, non-interview (Category 3)			
Always busy	3.120	125	320
No answer	3.130	2,375	515
Answering machine - unknown if household	3.140	1,141	0
Call blocking	3.150	4	22
No screener completed: No live contact made	3.210	0	3,235
No screener completed: Live contact made	3.210	0	1,988

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[2] Abt SRBI's disposition codes and reporting are consistent with the American Association for Public Opinion Research standards.

Other: "cell phone" dispo used in error	3.910	0	5
Other: Cell case physically or mentally unable/incompetent	3.920	0	22
Other: Cell case language problem	3.930	0	33
Not eligible (Category 4)			
Fax/data line	4.200	390	6
Non-working/disconnect	4.300	8,755	1,973
Temporarily out of service	4.330	293	622
Cell phone	4.420	3	0
Business, government office, other organizations	4.510	689	262
No eligible respondent (e.g., child phone)	4.700	25	249
Other	4.900	0	0
Total phone numbers used		15,737	9,671
Completes (1.0)	I	397	385
Partial Interviews (1.2)	P	19	19
Eligible Non-Interview: Refusal (2.1)	R	1,133	15
Eligible Non-Interview: Non-Contact (2.2)	NC	347	0
Eligible Non-Interview: Other (2.3)	O	41	0
Undetermined If Working and Residential (3.1)	UH	3,645	857
Working and Residential But Undetermined Eligibility (3.2,3.9)			
Live contact was made	UO_C	0	2,043
Live contact not made	UO_{NC}	0	3,240
Not Eligible: Nonworking, Nonresidential, or Ported (4.1-4.5,4.9)	NWC	10,130	2,863
Screen Out: Working and Residential but Not Eligible (4.7)	SO	25	249
TOTAL		15,737	9,671
$e1=(I+P+R+NC+O+UO_C+OU_{NC}+SO)/(I+P+R+NC+O+UO_C+OU_{NC}+SO+NWC)$		16.2%	67.5%
$e2=(I+P+R)/(I+P+R+SO)$		98.4%	62.7%
AAPOR RR3 = $I / (I+P+R+NC+O+[e1*e2*UH]+[e2*(UO_C +UO_{NC})])$		15.76%	9.40%
AAPOR CON2 = $(I+P+R+O+[e2*UO_C]) / (I+P+R+NC+O+[e1*e2*UH]+[e2*(UO_C+UO_{NC})])$		63.12%	41.52%
AAPOR COOP1 = $I / (I+P+R+O+[e2*UO_C])$		24.97%	22.64%
AAPOR REF2 = $R / (I+P+R+NC+O+[e1*e2*UH]+[e2*(UO_C +UO_{NC})])$		44.98%	0.37%
CONTACT x COOP		15.76%	9.40%