



Methods Report for Vanderbilt University's:

Tennessee Poll

Spring 2018

Survey of TN Registered Voters Age 18+

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OVERVIEW

The Center for the Study of Democratic Institutions (CSDI) at Vanderbilt University regularly conducts public opinion polls of Tennessee registered voters to provide non-partisan, scientifically-based public opinion data. Each year, the Vanderbilt Poll conducts at least two statewide surveys, one prior to the start of the legislative season and one at its conclusion. These polls provide point-in-time data to find out what registered voters in Tennessee think about national, state, and local public policy issues.

The Tennessee Poll Spring 2018 obtained telephone interviews with a representative sample of 1,400 registered voters, age 18 or older, living in Tennessee. Telephone interviews were conducted by landline (1,130) and cell phone (270, including 179 without a landline phone). Interviews were done in English from April 26-May 8, 2018. Statistical results are weighted to correct known demographic discrepancies. The margin of sampling error for the complete set of weighted data is ± 3.6 percentage points.

Details on the design, execution and analysis of the survey are discussed below.

QUESTIONNAIRE DEVELOPMENT

The questionnaire was developed by the Principal Investigators at the Center for the Study of Democratic Institutions (CSDI) at Vanderbilt in consultation with the SSRS project team. Prior to the field period, SSRS programmed the study into CfMC 8.6 Computer Assisted Telephone Interviewing (CATI) software. Extensive checking of the program was conducted to ensure that skip patterns and sample splits followed the design of the questionnaire.

SAMPLING METHODS

The target population for this poll was Tennessee registered voters age 18 or older. SSRS used a registration-based sampling (RBS) approach. RBS sample was procured from L2, one of the major providers of voter list samples. Samples were provided according to SSRS specifications.

The sample frame was split into eight strata: [1] 18-29 with landline; [2] 30-44 with landline; [3] 45-64 with landline; [4] 65+ with landline; [5] 18-29 with only cell phone; [6] 30-44 with only cell phone; [7] 45-64 with only cell phone; [8] 65+ with only cell phone. Records with both a landline and cell phone were included in the landline strata. A separate sample was drawn in each stratum.

The sample size for this poll was $n=1,400$ interviews. Overall, approximately 80% of respondents were reached via landline and approximately 20% of respondents were reached via cellular telephone. The majority of the voter list is comprised of landline telephone records.

CONTACT PROCEDURES

For respondent selection for landline sample, interviews were conducted with the youngest adult 18+ male/female at home based on a random rotation. For the cellular 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. For both landline and cell samples, after an adult was on the phone, geographic eligibility and current voter registration status were determined prior to accepting the respondent into the survey.



DATA COLLECTION, PROCESSING, AND INTEGRATION

Survey Administration

The field period for this study was April 26-May 8, 2018. All interviews were completed in English using the CATI system. The CATI system ensured that questions followed logical skip patterns and that complete dispositions of all call attempts were recorded.

CATI interviewers received written materials about the survey instrument and received formal training for this particular project. The written materials were provided prior to commencement of data collection and included an annotated questionnaire that contained information about the goals of the study, detailed explanations about why questions were being asked, the meaning and pronunciation of key terms, potential obstacles to be overcome in getting good answers to questions, and respondent problems that could be anticipated ahead of time, as well as strategies for addressing the potential problems.

Interviewer training was conducted before the study was launched. Interviewers were given instructions to help them maximize response rates and ensure accurate data collection.

In order to maximize survey response, SSRS enacted the following procedures during the field period:

- As many as five (5) attempts were made to contact every sampled telephone number.
- 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.
- Calls were staggered over times of day and days of the week to maximize the chance of making contact with potential respondents. At least one daytime call was conducted if necessary.
- Interviewers explained the purpose of the study and its importance.
- Respondents were offered the option of scheduling a call-back at their convenience.

Data Processing and Integration

Prior to running cross-tabulations, data were cleaned and checked using standard procedures. This program establishes editing parameters in order to locate any errors. No coding was done for open-end responses.

WEIGHTING AND ANALYSIS

Weighting is generally used in survey analysis to compensate for sample designs and patterns of non-response that might bias results. The weighting ensures that the demographic profile of the sample matches the profile of the target population. The data was weighted to match Tennessee registered voter parameters.

The sample was weighted in two stages. The first-stage of the weighting was the application of a base weight to account for different selection probabilities. In the second stage of weighting, sample demographics were matched to population parameters.

Base weight

The sample frame was divided into strata based on age, and younger registered voters were sampled at higher rates in order to get more young respondents. The first step of the weighting was to compute a base weight to account for the disproportionate sampling across strata. Base weights were computed so that the base weighted



distribution of the sample drawn across strata was the same as the distribution of the entire sample frame across the strata.

Post-stratification

The second stage of weighting balanced sample demographics to population parameters. The sample was balanced to match Tennessee registered voter parameters for sex, age, race, education, and region. The basic weighting parameters came from a special analysis of the Current Population Survey, November 2016: Voting and Registration Supplement. The region parameter came from the U.S. Census Bureau’s 2011-2015 5-Year American Community Survey (ACS) data.

The following table lists the dimensions used in the raking.

Table 1: Raking Dimensions

Dimension	Value Label
Sex	Male
	Female
Age	18-29
	30-34
	35-44
	45-54
	55-64
	65+
Race/Ethnicity	White, not Hispanic
	Other
Education	HS graduate or less
	Some college/Associates degree
	College graduate
Region	East
	Nashville
	Central
	Memphis/West

Weighting was accomplished using SPSSINC RAKE, an SPSS extension module that simultaneously balances the distributions of all variables using the GENLOG procedure. Weights were trimmed 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 target population. Table 2 compares weighted and unweighted total sample distributions to population parameters.



Table 2: Population Parameters and Weighted and Unweighted Total Sample Distributions

Characteristic	Value Label	Parameter	Unweighted	Weighted
Sex	Male	46.3	44.1	45.9
	Female	53.7	55.9	54.1
Age	18-29	14.7	3.3	11.2
	30-34	8.5	2.4	7.8
	35-44	15.8	8.5	16.1
	45-54	16.2	16.0	17.2
	55-64	20.3	28.6	21.6
	65+	24.5	41.2	26.1
	Race/Ethnicity	White, not Hispanic	80.0	78.1
Other		20.0	21.9	20.5
Education	HS graduate or less	41.6	25.8	38.5
	Some college/Associates degree	24.2	26.7	25.6
	College graduate	34.2	47.5	36.0
Region	East	36.9	35.9	36.9
	Nashville	23.5	24.3	23.8
	Central	20.4	19.3	20.1
	Memphis/West	19.2	20.6	19.2

Effects of Sample Design on Statistical Analysis

Post-data collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. SSRS calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called "design effect" or *deff* represents the loss in statistical efficiency that results from a disproportionate sample design and systematic non-response. The total sample design effect for this survey is 1.86.

SSRS calculates the composite design effect for a sample of size n , with each case having a weight, w as:

$$deff = \frac{n \sum w^2}{(\sum w)^2}$$

In a wide range of situations, the adjusted standard error of a statistic should be calculated by multiplying the usual formula by the square root of the design effect (\sqrt{deff}). Thus, the formula for computing the 95% confidence interval around a percentage is:

$$\hat{p} \pm \left(\sqrt{deff} \times 1.96 \sqrt{\frac{\hat{p}(1 - \hat{p})}{n}} \right)$$

where \hat{p} is the sample estimate and n is the unweighted number of sample cases in the group being considered.



The survey's margin of error is the largest 95% confidence interval for any estimated proportion based on the total sample — the one around 50%. For example, the margin of error for the entire sample is ± 3.6 percentage points. This means that in 95 out every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 3.6 percentage points away from their true values in the population. Margins of error for subgroups will be larger. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as respondent selection bias, questionnaire wording, and reporting inaccuracy, may contribute additional error of greater or lesser magnitude.

RESPONSE RATES

Table 3 reports the disposition of all sampled telephone numbers ever dialed from the original telephone number samples. The response rate estimates the fraction of all eligible sample that was ultimately interviewed. Response rates are computed according to American Association for Public Opinion Research standards.¹

- The response rate for RBS landline was 5 percent.
- The response rate for RBS cell was 7 percent.

¹ The American Association for Public Opinion Research. 2016. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition. AAPOR.



Table 3: Sample Disposition

RBS LL	RBS Cell	TOTAL	
1,327	115	1,442	Non-residential/Business
28	0	28	Over quota
0	0	0	Listed person does not exist/deceased
10	7	17	Cell in landline frame / LL in Cell frame
15	1	16	Duplicate number
1,380	123	1,503	OF = Out of Frame
19,487	976	20,463	Not working
1,739	7	1,746	Computer/fax/modem
21,226	983	22,209	NWC = Not working/computer
12,496	860	13,356	NA/Busy all attempts
12,496	860	13,356	UHU _{NC} = Non-contact, unknown if household/unknown other
4,979	3,081	8,060	Voice mail
2,366	69	2,435	Privacy Manager
19	9	28	Other non-contact (deaf/disabled)
7,364	3,159	10,523	UO _{NC} = Non-contact, unknown eligibility
5,255	1,307	6,562	Refusals
3,904	1,415	5,319	Callbacks
9,159	2,722	11,881	UO _R = Refusal, unknown if eligible
69	65	134	O = Other (language)
0	141	141	Child's cell phone
155	95	250	Other ineligible
155	236	391	SO = Screen out (ineligible)
196	29	225	R = Refusal, known eligible (breakoffs and qualified CBs)
1,130	270	1,400	I = Completed interviews
53,175	8,447	61,622	T = Total numbers sampled



Table 3: Sample Disposition (continued...)

RBS LL	RBS Cell	TOTAL	
44.4%	85.4%	50.9%	$e1 = (I+R+SO+O+UO_R+UO_{NC}) / (I+R+SO+O+UO_R+UO_{NC}+OF+NWC)$ - Est. frame eligibility of non-contacts
89.5%	55.9%	80.6%	$e2 = (I+R) / (I+R+SO)$ - Est. screening eligibility of unscreened contacts
45.3%	46.0%	44.8%	$CON = [I + R + (e2*[O + UO_R])] / [I + R + (e2*[O + UO_R + UO_{NC}]) + (e1*e2*UHUO_{NC})]$
11.8%	14.5%	12.4%	$COOP = I / [I + R + (e2*[O + UO_R])]$
5.3%	6.7%	5.5%	AAPOR RR3 = $I / [I + R + [e2*(UO_R + UO_{NC} + O)] + [e1*e2*UHUO_{NC}]] = CON * COOP$

DELIVERABLES

SSRS delivered to Vanderbilt University:

- Final questionnaire instrument;
- Weighted dataset in SPSS;
- Weighted banners in PDF; and
- A detailed methods report.

ABOUT SSRS

SSRS is a full-service market and survey research firm managed by a core of dedicated professionals with advanced degrees in the social sciences. Service offerings include the Omnibus Survey, Probability Panel and other Online Solutions as well as custom research programs – all driven by a central commitment to methodological vigor. The SSRS team is renowned for its multimodal approach, as well as its sophisticated and proprietary sample designs. Typical projects for the company include complex strategic, tactical and public opinion initiatives in the U.S. and in more than 40 countries worldwide. SSRS is research, refined. Visit www.ssrs.com for more information.