



BUREAU OF SOCIOLOGICAL RESEARCH

Vote Wise Survey Analysis

Methodology Report

Jan 2025



The contents of this report conform to our highest standards for data collection and reporting. If you should have any questions or concerns regarding the information reported within, please contact us.

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Nebraska Annual Social Indicators Survey Methodology Report

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Suggested Citation (APA Style):

Bureau of Sociological Research. (2025). *Vote Wise Survey Analysis Methodology Report*. University of Nebraska-Lincoln.

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Vote Wise Survey Weighting Methodology Report

Introduction

This report presents a detailed account of the weighting of Vote Wise's survey data. Users of the data will find it an important reference source for answers to questions about weight creation¹.

Weighting

A total of 110 completed surveys were received. The data were weighted in two ways to account for the nonresponse and population characteristics. First, data were weighted for nonresponse (NRwt) by age group (age_grp) and political party (party). Next, poststratification weights were applied based on age (age_grp) in order for the data to more closely resemble the population (post_cat). Hotdeck imputation was used to provide complete data on age for weighting. Table 1 shows the poststratification groups and the population counts from the voter population data provided by the researcher.

Table 1. Population counts by age group

Age Group	Population
18-39	49,797
40-64	40,631
65+	15,154
Total	105,582

Table 2 displays population frequencies and its comparison to the weighted and unweighted frequencies. Nonresponse (NRwt) and poststratification (post_cat) weights were multiplied together and rescaled (Rescale) to create the final weight. The variables used in weighting are included in the dataset. The final weight in the dataset is called Pwate.

Table 2. Representativeness of Sample by Age Group (Percentage Distribution by Age Group)

Category	Population data	Survey data, Unweighted	Survey data, Weighted By Pwate
18-39	47.2%	24.5%	47.2%
40-64	38.5%	44.5%	38.5%
65+	14.4%	30.9%	14.4%
Total	100%	100%	100%

Design Effects

The design effect due to weighting adjustments is 1.46, which represents the loss in statistical efficiency that results from unequal weights².

¹ The Bureau of Sociological Research (BOSR) completed this report. Although BOSR is a part of the American Association of Public Opinion Research's (AAPOR) Transparency Initiative, the reporting criteria are not met in this report given that the client collected the data themselves and the report is intended for their use only. Reporting these criteria back to the client who would have to provide this information to BOSR is redundant and unnecessary.

² The formula used is: $1 + cv^2(w) = \frac{n(\sum_1^n w_i^2)}{(\sum_1^n w_i)^2}$

Appropriate adjustments need to be incorporated into statistical tests when using this data. See Appendix A for more information.

Questions

Any questions regarding weighting of this data can be directed to the Bureau of Sociological Research at the University of Nebraska-Lincoln by calling (402) 472-3672 or by sending an e-mail to bosr@unl.edu.

Appendix A: Estimate of Sampling Error

The random sample of voters in Lincoln. Because the data were weighted, the estimates of the sampling error are not straightforward. Table 3 presents margins of sampling error for some of the most likely sample sizes *not* taking the design effect from weighting into account. Exact margins of error for alternative specifications of sample size and reported percentages can be easily computed by using the following formula for the 95% confidence level:

$$\text{Margin of error} = 1.96 * \text{square root } (p(1-p)/n)$$

p = the expected proportion selecting the answer
n = number of responses

Table 3. Approximate Margins of Error of Percentages by Selected Sample Size NOT Accounting for Design Effect (Expressed In Percentages)*

Reported Percentage	Full Sample* n=110	75% Sample n=82	50% Sample n=55	33.3% Sample n=36	25% Sample n=27	10% Sample n=11
50	9.34%	10.82%	13.21%	16.33%	18.86%	29.55%
40 or 60	9.16%	10.60%	12.95%	16.00%	18.48%	28.95%
30 or 70	8.56%	9.92%	12.11%	14.97%	17.29%	27.08%
20 or 80	7.48%	8.66%	10.57%	13.07%	15.09%	23.64%
10 or 90	5.61%	6.49%	7.93%	9.80%	11.32%	17.73%
5 or 95	4.07%	4.72%	5.76%	7.12%	8.22%	12.88%

* 95% confidence interval states that in 95 out of 100 samples drawn using the same sample size and design, the interval will contain the population value

When accounting for a design effect, the adjusted sampling error will be increased as is shown when comparing Table 3 to Table 4 where the weighting design effect is incorporated:

$$\text{Margin of error} = \text{square root } (\text{deff}) * 1.96 * \text{square root } (p(1-p)/n)$$

deff = design effects
p = the expected proportion selecting the answer
n = number of responses

Table 4. Approximate Margins of Error of Percentages by Selected Sample Size Accounting for the Design Effect of Weighting

Reported Percentage	Full Sample* n=110	75% Sample n=82	50% Sample n=55	33.3% Sample n=36	25% Sample n=27	10% Sample n=11
50	11.31%	13.10%	15.99%	19.77%	22.82%	35.76%
40 or 60	11.08%	12.83%	15.67%	19.37%	22.36%	35.03%
30 or 70	10.36%	12.00%	14.66%	18.11%	20.92%	32.77%
20 or 80	9.05%	10.48%	12.79%	15.81%	18.26%	28.61%
10 or 90	6.78%	7.86%	9.59%	11.86%	13.69%	21.45%
5 or 95	4.93%	5.71%	6.97%	8.62%	9.95%	15.59%

* 95% confidence interval states that in 95 out of 100 samples drawn using the same sample size and design, the interval will contain the population value