Supplement: Analysis and code for 'Testing Accuracy in Charts with Surveys'

June 19, 2023

Abstract

1 Survey rounds

The data for this paper were collected in several rounds as part of the NORC Omnibus.

Table 1: Survey rounds: dates, number of participants (nominal sample size), and sum of weights.

Name	Date	# Participants	Weights $\sum_i w_i$
Round 1	April 2022	942	934.9
Round 2	May 2022	960	953.4

O'Muircheartaigh & Pedlow (2002) suggest combining surveys S_1 and S_2 by multiplying weights in S_1 and S_2 by λ and $1-\lambda$, respectively.

$$\lambda = \frac{n_1/d_1}{n_1/d_1 + n_2/d_2},$$

where n_1 and n_2 are the nominal sample sizes and d_1 and d_2 are the design effects for the estimators. Instead of using design effects itself, d_1 and d_2 are estimated as

$$d_1 = 1 + CV(w_i \in S_1)^2 \quad \text{and} \quad d_2 = 1 + CV(w_i \in S_2)^2$$

CV is the coefficient of variation of the weights within each sample.

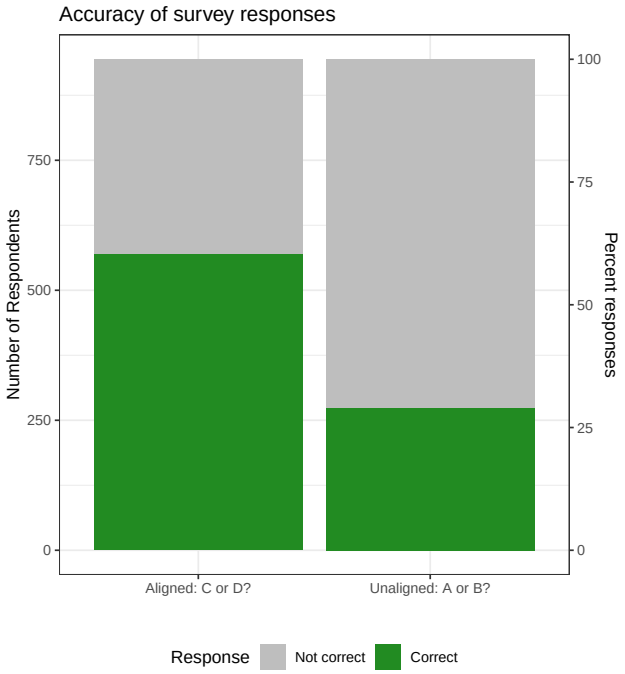
O'Muircheartaigh & Pedlow (2002) calculated λ separately for any combination of race/ethnicity by sex.

We will calculate λ separately whenever we include demographic variables in the analysis, otherwise we will use a single adjustment for the weights.

All calculations are done in R (**?**) using the `survey` package (Lumley 2004) version 4.0 (Lumley 2020) based on Lumley (2010).

2 Model 1

Accuracy comparing aligned versus unaligned bars. The data used for this is a combination of rounds 1 and 2 using the strategy of weighted sampling weights proposed by O'Muircheartaigh & Pedlow (2002).



References

Lumley, T. (2004), 'Analysis of complex survey samples', *Journal of Statistical Software* **9**(1), 1–19.

Lumley, T. (2010), *Complex Surveys: A Guide to Analysis Using R: A Guide to Analysis Using R*, John Wiley and Sons.

Lumley, T. (2020), 'Survey: Analysis of complex survey samples'.

O'Muircheartaigh, C. & Pedlow, S. (2002), Combining Samples Vs. Cumulating Cases: A Comparison of Two Weighting Strategies in NLSY97, *in* 'ASA Proceedings of the Joint

Statistical Meetings', pp. 2557–2562.

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