

Exercise 1 - comment on question 6

I realized that I forgot to divide by n in R when I calculated the SE in question 6a which I presented in todays class. Also, the weight should be included in 6d as shown below in the correct figures/formulas.

$$SE_{\bar{x}} = \sqrt{\frac{\hat{\sigma}^2}{n} \cdot \frac{(N-n)}{N}} = \sqrt{\frac{4.13}{24} \cdot \frac{(252-24)}{252}} \approx .39$$

$$SE_{\bar{x}_w} = \sqrt{\sum_{i=1}^{12} \frac{\hat{\sigma}_i^2}{n_i} \cdot \frac{(N_i-n_i)}{N_i} \cdot \left(\frac{N_i}{N}\right)^2} = \sqrt{\sum_{i=1}^{12} \frac{\hat{\sigma}_i^2}{2} \cdot \frac{(N_i-2)}{N_i} \cdot w_i^2} \approx .42$$

so that the ratio $SE_{\bar{x}_w}/SE_{\bar{x}} = 1.07$.