

Solution to Assignment 4

7.2: $E[\hat{p}] = 0.4$ and $\text{Var}(\hat{p}) = 0.09$.

7.6: For the smaller population, $\text{Var}(\bar{X}) = 0.0399904\sigma^2$, and for the larger population, $\text{Var}(\bar{X}) = 0.0399999\sigma^2$. Since these values are nearly identical it is not substantially easier to estimate the mean of the smaller population (assuming the effort needed to collect the data is similar).