STAT 341 - Worksheet
2/27/2019

Your Name (scribe): _____

Partner Name(s): _____

Liquid assets are assets such as accounts or securities that can be easily converted to cash at little or no loss of value. Examples include cash, money in bank accounts, certificates of deposit and U.S. Treasury bills.

In designing a survey for a city, its 500,000 dwelling units each were assigned economic ratings, L, M and H for Low, Medium & High. Then simple random samples of dwelling units are drawn within each of the 3 categories (strata). Focus for now on the variable "Liquid Assets" (LA). For this survey, the stratum sizes, sample sizes, sample means and sample standard deviations are as follows.

Stratum	N	n	sample mean LA	sample sd(LA)
L	200,000	200	$1,400	$3,600
M	250,000	200	$3,800	$8,200
H	50,000	100	$19,200	$35,600
Combined (unweighted)	500,000	500	$5,920	$18,188

1. Use this information to construct an approximate 90% confidence interval for the mean amount of liquid assets among the residents of this city. For now, you may make the assumption that the distribution of LA within each stratum is "well enough behaved" to be able to base your CI on normal theory. Ignore for now the finite population correction factor.

2. a. If you used the overall sample mean for #1, then now compute the weighted sample mean, and vice versa.

b. Compare your two means. Which is smaller? Explain why it turned out to be smaller. (Conceptually, not just numerically)

c. Compare your two confidence intervals. Which is narrower? Explain why it turned out to be narrower. (Conceptually, not just numerically)

Some additional questions:

3. Do you notice anything suspicious about the given statistics?

4. One critic questioned the assumption that it is okay to use a normal theory-based procedure to construct the CI. Do you agree or not? Why?