

ECO220Y: Homework, Lecture 11

Readings: Chapter 13 (section 13.2), Chapter 14 (section 14.1) and re-read Chapter 11 (skip section 11.5)

Exercises: Chapter 11: 49, 50, 53, 54

Problems:

- (1) Suppose you find the 95% confidence interval estimate for the population mean has $LCL = 10$ and $UCL = 12$. What is wrong with saying that there is a 95% chance that the population mean falls between 10 and 12? What is the point estimate?
- (2) What is the probability that a statistician who estimates 20 independent 95 percent confidence intervals will mistakenly miss a population mean at least once? Only once? Not at all?
- (3) The net weights of cracker boxes are normally distributed with the mean of 16 ounces and a standard deviation of 0.1 ounce. Assume that the standard deviation is known to be 0.1 ounce but that the mean is unknown. A sample of 10 boxes yields a sample mean of 15.99 ounces.
- (a) Construct a 90 percent confidence interval for the mean.
- (b) Construct a 95 percent confidence interval for the mean.
- (c) Construct a 99 percent confidence interval for the mean.
- (d) Is a 99 percent confidence interval wider or narrower than a 90 percent confidence interval? Carefully explain your answer.