

§7.1 Identifying and Estimating Target Parameters

What we have been doing is describing characteristics of populations or samples using statistics. We've look at qualitative and quantitative characteristics. We've used various types of graphs and charts. The mean, median, mode, quartiles, variance and standard deviation have been used to describe data sets. These statistics have been applied to discrete and continuous random variables such as binomial and normal distributions.

In this chapter we move to inferential statistics. That is, we will try to infer characteristics of a population by looking at a sample of that population.

Vocabulary

A parameter is a numerical value, ~~or statistic~~, that would be calculated using all of the values of the units in a population.

A statistic is a numerical value that is calculated using all of the values of the units in a sample of a population.

Examples

- What is the average life of a particular type of light bulb?
- What is the mean and variance of the amount of water a Texan drinks in one day?
- What proportion of adults ages 18 to 21 play video games?

The unknown population parameter, mean or proportion, that we are interested in estimating is called the target parameter.

<u>Parameter</u>	<u>Key words or Phrases</u>	<u>Type of Data</u>
μ	Mean or average	Quantitative
P	Proportion; percentage; fraction; rate	Qualitative
σ^2	Variance; variability; spread	Quantitative

A point estimator of a population parameter is a rule or formula that tells us how to use a sample data set to calculate a single number as an estimate of the target parameter.

An interval estimator (or confidence interval) is a formula that tells us how to use sample data to calculate an interval of values that estimate the target parameter.