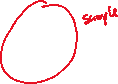
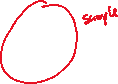
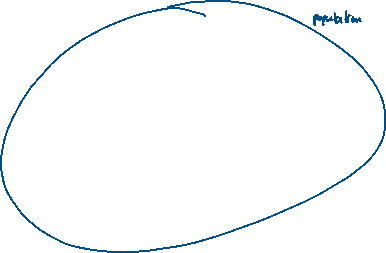
# Population Parameter vs. Sample Statistic



A calculation using sample data is a statistic. For example, a sample average is a statistic. The sample median is a statistic. The maximum sample is also a statistic.

Imagine that we have the population data. A calculation using the population data is called a parameter. For example, a population average/mean is a parameter. The population median is a parameter. Maximum/minimum in the population data is also parameter.

**Example:** Determine whether each number describes a population parameter or a sample statistic.

1. College freshmen have an average SAT math score of 514.



1. In a random check of several hundred retail stores, the Food and Drug Administration found that 34% of the stores were not storing fish at the proper temperature.



**You Try:** Determine whether each number describes a population parameter or a sample statistic.

1. American median income is $40k

1. In the United States, a survey of a few thousand adults found that their median income is 60k

**You Try:** Determine whether each number describes a population parameter or a sample statistic.

1. In the United States, 40% adults with hearing loss have difficulty remembering conversations.

1. In the United States, a survey of a few thousand adults with hearing loss found that 43% have difficulty remembering conversations.

**You Try:** Determine whether each number describes a population parameter or a sample statistic.

1. In the United States, 43% adults with hearing loss have difficulty remembering conversations.

1. In the United States, a survey of a few thousand adults with hearing loss found that 43% have difficulty remembering conversations.

# Inferential Statistics

**Example:** A study of 300 Wall Street analysts found that the percentage who incorrectly forecasted high-tech earnings in a recent year was 44%.

1. Identify the population and the sample   
     
   Sample: 300 analysts from the study

Population: All Wallstreet analysts

1. What conclusions might be drawn from the study using inferential statistics

Some conclusions might be drawn:

* Wallstreet analysts are not accurate as they were 10 years ago (given that 10 years ago, the rate is 60%)
* Wallstreet analysts are only accurate about half of the time.
* Wallstreet analysts are accurate less than 45% of the time.

**You Try:** A study of 1000 U.S. adults found that when they have a question about their medication, three out of four adults will consult their physician or pharmacist and only 8% visit a medicationspecific website.

1. Identify the population and the sample

Sample: 1000 US adults

Population: All US adults.

1. What conclusions might be drawn from the study using inferential statistics

* 75% US adults consult when they have question about their medication
* Less than 10% US adult visita medication specific website when they have questions about their medication.

**You Try:** A study of 300 recent college graduates found that the median starting salary in their first job was $52,000.

1. Identify the population and the sample

1. What conclusions might be drawn from the study using inferential statistics

**You Try:** A study of 300 mutual funds found that the maximum annual return achieved in a recent year was 28%.

1. Identify the population and the sample

1. What conclusions might be drawn from the study using inferential statistics